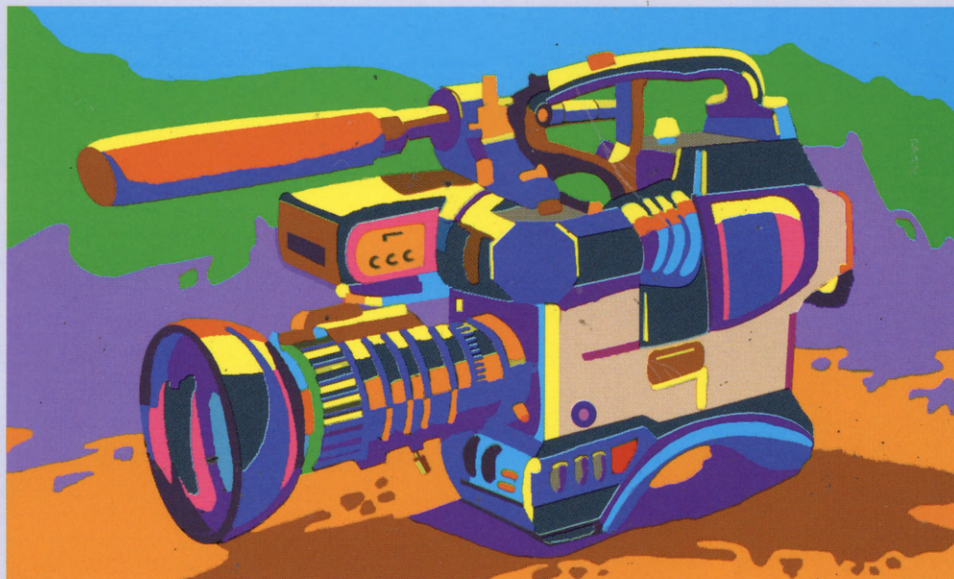


Panasonic®

Winter 1993/94



Broadcast & Television Systems Company

METROVONICS, INC.
Professional Video Sales • Service • Rentals

METROVONICS, INC.

Professional Video Sales • Service • Rentals

DID YOU KNOW?

That **METROVONICS, Inc.** is one of the oldest Professional and Industrial Video dealers in Southern California? Customers have been calling **METROVONICS** for 24 years because they know they can depend on the products we sell and service. We offer equipment and systems from Panasonic and many other fine professional manufacturers.

At **METROVONICS**, we design, build, install and service the video system you need. No matter what the size of your business or whether the system is simple or complex, we can supply a complete "turn-key" system that is within your budget. At **METROVONICS**, old fashioned service is not a thing of the past.

Our services include sales, rental, training and repair of professional video and CCTV equipment. We are very competitively priced and systems may be purchased or leased.

Call **METROVONICS** and we will be more than happy to provide you with information on the latest in Professional Video and CCTV Systems.

Thank you.

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Broadcast & Television Systems Company

MII RECORDERS/PLAYERS

AU-62H/63H MII ^{ENHANCED} Hseries Studio Players

Common features:

- High-quality 90-minute playback • Built-in digital 3-D type field TBC featuring correction range of 1 field, 262.5H • Digital freeze still • Noiseless still • 4-field sequence color framing • 4-channel audio with independent level adjustment • 4 VU meters • Dolby C noise reduction • Internal time code reader (VITC/LTC/UB) • User bits can be retrieved independently from either VITC or LTC • NTSC 16:9 wide aspect compatibility • Y/C output • RS-422A serial interface • High-speed search/jog • Provides up to 32X normal speed in forward and reverse • On-screen setup menu with search dial for settings • Built-in digital hour meter • Improved superimpose capability • Optional CCIR601 output (digital component video) capability, AU-MK26 • Tape speed override allows manual 15% playback speed adjustment in 1% steps • Optional encoder remote control, AU-ER65B • 8-digit FL display • 19" rack-mount capability using AU-M60 adaptor (requires only 6 vertical rack units)

AU-62H Includes common features \$10,500.00

AU-63H Includes common features plus: • Auto Tracking function allows noiseless playback from -1X to +2X normal speed, plus instant starts from still frames in variable mode • Variable memory playback: Changes in tape speed and direction can be memorized on models incorporating variable memory control functions (AU-65H, AU-A950HD) • Program play: Using the variable (A/T) mode, playback speed can be adjusted from 80%-120% in 0.1% steps to allow easier time compression or expansion for on-air production. \$15,300.00

AU-65H/66H MII ^{ENHANCED} Hseries Studio Recorders

Common features:

- High-quality 90-minute recording and playback • Picture-in-picture • 1-event assemble editing and a full range of insert editing operations for video, audio (CH1/CH2) and time code • Offers preview, review, go to, trim and auto tag • Audio split editing • Variable memory editing: When used with AU-63H Player, playback contents of the player's A/T mode within the range extending from normal speed in reverse to twice normal speed forward can be memorized by the recorder for playback and editing • >49dB S/N video (component Y); >56dB S/N audio • Built-in digital 3-D type field 8-bit TBC featuring correction range of 1 field, 262.5H • Digital freeze still • Noiseless still • 4-field sequence color framing • 4-channel audio with independent level adjustment • 4 VU meters • Dolby C Noise reduction • Internal time code reader (VITC/LTC/UB) • User bits can be retrieved independently from either VITC or LTC • NTSC 16:9 wide aspect compatibility • Y/C in/out connector • RS-422A serial interface • High-speed search/jog • Provides up to 32X normal speed in forward and reverse • On-screen setup menu with search dial for settings • Built-in digital hour meter • Improved superimpose capability • Optional CCIR601 output (digital component video) capability, AU-MK26 • Tape speed override allows manual 15% playback speed adjustment in 1% steps • Optional encoder remote control, AU-ER65B • 8-digit FL display • 19" rack-mount capability using AU-M60 adaptor (requires only 6 vertical rack units)

AU-65H Includes common features \$15,750.00

AU-66H Includes common features plus
Auto Tracking and confidence
playback (audio and video). 20,000.00



AU-66H



AU-55H

AU-M60	Rack-mount adaptor (ears)	\$ 95.00
AU-C5	9-pin serial cable, 16'	105.00
AU-C10	9-pin serial cable, 32'	145.00
AU-C30	9-pin serial cable, 96'	265.00
AU-MK26	4:2:2 component digital output installed	5,500.00
RSK-L	Rackslide for studio VTRs (long)	205.00

AU-45H MII ^{ENHANCED} Hseries Dockable Recorder/Player

- 68-pin connector allows direct docking with a variety of cameras (WV-F700ASH, WV-F250B, etc.) • 4 audio channels: FM audio (CH3/CH4) and linear audio (CH1/CH2) with Dolby C noise reduction circuitry • Built-in SMPTE time code generator (VITC/LTC/UB) with independent TC in/out terminals • 2-year backup battery for TC/CTL • Record/review function for 1-touch recording check • VTR operation buttons (FF/Rew/Play/Stop) located on the top panel • On-screen setup menu with digital time meter • Self-diagnosis function prevents errors prior to recording • Tape and battery meter • Accepts AU-BP402 or Anton/Bauer battery pack

AU-45H \$9,650.00

AU-55H MII ^{ENHANCED} Hseries Portable Recorder/Player

- Component signal (Y/PB/PR) level-check function • BNC component signal output (Y/PB/PR) • Color-framing compatibility (recording/playback) • Sony† BVR-3 remote controller can also be used • 4 audio channels: FM audio (CH3/CH4) and linear audio (CH1/CH2) with Dolby C noise reduction circuitry • Phantom power supply (48VDC) to mic/line connector • Convenient record/review functions • Built-in SMPTE time code generator (VITC/LTC) and reader (LTC) with superimpose capability on the video output • 5X normal speed search with color picture and time code • RS-422A 9-pin serial interface • Audio AGC (CH1/CH2) • Video output level adjustment (Video Level, Sync Phase, SC Phase) • External genlock

AU-55H \$13,000.00

Accessories for AU-62H/63H/65H/66H

AU-ER65B	Encoder remote control unit	\$ 825.00
AU-IA35	Transcoder (Y, I/Q to Y, R-Y, B-Y)	1,000.00
AU-MK25	Parallel remote kit	340.00
AU-A15	Dual parallel remote control for MII or other VTRs (cable not included)	650.00

Accessories for AU-45H/55H

AU-M402	Battery holder (AU-45H)	\$475.00
AU-BP402	Battery pack for AU-45H/55H	325.00

†The name and mark Sony is the property of the Sony Corporation.

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Broadcast & Television Systems Company

MII VCRs/CONTROLLER/ MONITORS

AU-410 Dockable MII Recorder/Player

- Delivers high-quality pictures on par with 1" VTRs • Records using component signals to deliver high-quality pictures from NTSC type video cameras • Employs compact, lightweight cassettes with 20-minute recording time, usable in MII editing without an adaptor • Playback heads for both audio and video, in addition to the recording head, to enable on-the-spot review of recording quality • Automatic backspacing of 20 frames (approx. 0.7 sec.); successive pictures are recorded by means of "assemble" type recording for a smooth, glitch-free bridge • Built-in time code generator: VITC/LTC • Jamsync: time code can be recorded continuously at the edit points when performing backspace editing • Ext. time code input • 4-channel audio recording: 2 linear with Dolby C noise reduction, 2 FM multiplexed with the color signal • Warning indicator lamp for: head drum or capstan servo trouble, head clogging, tape slacking or jam, excess humidity • LED indicators • Soft-touch operation buttons • Phantom power (+48V) can be supplied to the audio input connectors for CH1/CH2

AU-410		\$9,850.00
AU-BP220V	Battery pack (2.2 AH).....	185.00
AU-B420	Battery charger used with AU-BP220V	850.00
AU-B110	AC adaptor.....	825.00
AU-M400	Battery holder	220.00

AU-A950HD Production Edit Controller

- Versatile production tool for S-VHS, MII and D-3 • 5-VTR, RS-422 direct control (4 source, 1 record) • 130M byte hard disk drive • Video and audio control by means of RS-422 ports • Preset-MEM control will read, store and write to memories in switcher devices; EDL will store memory settings, allowing perfect retrieval of effects • 10 GPI outputs, 2 GPI inputs • Centronics standard printer port • RS-232C (25-pin) port • PC compatible RS-232C (9-pin) port for a mouse, modem or other peripheral • ISA standard bus • A/B/C roll editing • Toggle A/B after edit • Auto tag source after edit • 4-channel audio editing • Variable memory editing • Fit and fill editing • Pre-read editing • Temporary recording • Color frame detection and control • 2000 event memory and CMX format EDL, including notes and block division • Built-in 3.5" floppy disk drive • Help key and interactive dialogue displays • Color graphic display • Programmable function keys, up to 50-key stroke can be registered using PF keys 1-8 • Multi-preview • You can assign any 4-digit numbers to an event • Arrow keys

AU-A950HD		\$15,500.00
C-1381i	Color computer monitor	565.00

AT-H1900 19" Diagonal High Resolution Color Monitor

- 600-line horizontal resolution • NTSC chroma decoder with I and Q demodulation • Beam current feedback system • Wideband CCD comb filter • Switchable comb and trap filters • Separated Y/C signal inputs • RGB/YPbPr inputs • 3 selectable video inputs • PAL capability can be added to NTSC chroma decoder • Front panel controls • Color/monochrome split screen display • Residual subcarrier display switch • NTSC correction matrix circuit (switchable) • Aperture correction circuitry (up to >10dB) • Automatic degausser with manual switch • Blue only switch • Horizontal AFC time constant is switchable between 0.5ms and 2ms • Normal/underscan selection switch • Monitoring of blanking intervals • Horizontal scanning automatically detects and switches between 525/625 line (optional PAL decoder is needed) • No burn in • R/G/B cathode drive circuit can be switched on/off individually • Dedicated DC power supply for CRT heater • 145W power consumption • Remote control capability

AT-H1900		\$8,000.00
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AU-410



AU-A950HD



C1381i



ET-AK100 Auto Setup Kit

- For AT-H1900 • Consists of the auto setup probe and a CPU circuit board • To record brightness data simply plug the probe into the terminal and position it in the center of the screen • Simply position the sensor probe in the middle of the screen and press auto setup button to correctly adjust chroma, phase and white balance automatically • Any 1 of 5 color temperature setups can be selected as standard • Choose between the built-in 9300K, 6500K and 3000K presets as well as 2 additional user-defined settings • Also possible to record the color temperature setup of a different monitor to achieve matched color reproduction • All operating menus and current settings appear on screen for easy confirmation

ET-AK100		\$1,500.00
ET-LK190	19" rack-mount kit (AT-H1900).....	300.00

C1381i 14" Diagonal Variable Frequency Multiscanning Color Monitor

- Compatible with: MCGS, VGA, SVGA, XGA and 8514/A • 14" diagonal, with 13" diagonal viewing area • 0.28mm dot pitch • Black matrix • Tinted, non-glare super dark screen • Horizontal scan rate: 30-38kHz • Vertical scan rate: 50-90Hz • Tilt and swivel stand

C1381i		\$565.00
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Broadcast & Television Systems Company

3CCD CAMERA



WV-F700

WV-F700 Series 2/3" 3CCD Digital Signal Processing Color Video Camera

- Three 2/3" IT super high sensitivity 380,000-pixel CCDs with on-chip optics • 62dB S/N ratio (typical) • Digital Signal Processing for stable and consistent image quality • Digital setup circuits have replaced over 66% of the manual controls, creating excellent reliability over time
- Illumination required: f/8 at 2000 lux, 3200K • Minimum illumination: 7 lux at f/1.8 + 24dB gain • Automatic white balance with 2 memories plus manual • Automatic black balance with pulse canceller • 1.5" electronic viewfinder with display • 1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec. electronic shutter • Crosscolor suppression, black/white shading, chroma detail, dark detail, 20 digital adjustments, genlockable when docked • Directly dockable to MII, S-VHS and Betacam without any adaptors • Built-in SMPTE color bar generator with time, date and camera ID • Remote control unit with serial control system • Remote control box for digital adjustments

Standard Configuration

• Camera head • Shoulder pad

WV-F700ASH	Digital processing video camera head with 750 lines horizontal resolution (directly dockable to S-VHS and MII) ..	\$12,400.00
WV-F700BH	Digital processing video camera head with 800 lines horizontal resolution (directly dockable to Betacam) ..	12,850.00

System Accessory Kits for the WV-F700

WV-S730 Basic Kit

• WV-VF40 1.5" EVF • WV-QT700 Tripod adaptor • WM-L30 Mic • WV-CC700 Carry case ..

WV-S750 ENG/EFP Kit

• J15X9.5BKRSII 15X lens • WV-VF40 1.5" EVF • WV-QT700 Tripod adaptor • WM-L30 Mic • WV-CC700 Carry case ..

Dockable Packages

DM-7045 MII Dockable Package

• WV-F700ASH 3CCD camera head • WV-S750 ENG/EFP kit • AU-45H MII dockable recorder ..

DS-7050B S-VHS Dockable Package

• WV-F700ASH 3CCD camera head • WV-S750 ENG/EFP kit • WV-DKT700S Docking kit • AG-7450A S-VHS Hi-Fi portable VCR ..

Lenses

A16X9BERM	f/1.8 Fujinon servo lens with extender, 16:1 9-144mm ..	\$5,290.00
A16X9BRM	f/1.8 Fujinon zoom lens, 16:1, 9-144mm ..	2,490.00
FC-S10A	Lens rear control kit (use with A16X9BRM) ..	1,250.00
J12X10BKRSII	f/1.7 Canon servo zoom lens, 12:1, 10-120mm ..	1,570.00
J15X9.5BIRS	f/1.8 Canon zoom lens with 2X extender, 15:1, 9.5-121mm ..	5,360.00
J15X9.5BKRSII	f/1.8 Canon zoom lens, 15:1, 9.5-143mm ..	2,310.00
J18X8.5BIRS	f/1.7 Canon zoom lens, 18:1, 8.5-153mm with 2X extender ..	13,900.00
NS15X8.5B1 EMS20	f/1.7 Nikon zoom lens, 15:1, 8.5-127.5mm with 2X extender ..	7,995.00

NRLCKIT3F

Lens rear control kit (use with above lens) ..

SPB-2076V

Lens control kit (use with above J Series camera lenses) ..

WV-LC10

Lens conversion cable from 8-pin to 12-pin ..

WV-LK35

Lens rear control kit (use with J12x10BKRSII) ..

YJ17X9.5BKRS

f/1.8 Canon zoom lens, 17:1, 9.5-162mm ..

Accessories

AG-BP212

12V, 2.3AH battery ..

DE-1232

Battery charger for WV-PS60 ..

WM-L30

RAMSA phantom power microphone ..

WV-AD19

Battery case for AG-BP212 ..

WV-AD700AS

Camera adaptor for use with multiplex coaxial control system (WV-F700ASH) ..

WV-BA71

Battery case for AU-BP402 ..

WV-BA72

Battery case for AU-BP220 ..

WV-BC30

Battery charger for WV-PS33 ..

WV-CA10B25

RCB cable (25m) ..

WV-CA10B50

RCB cable (50m) ..

WV-CA10T14

10-pin to 14-pin conversion adaptor ..

WV-CA26A10

26-pin to 10-pin VCR cable ..

WV-CA26A14

26-pin to 14-pin VCR cable ..

WV-CA26A26

26-pin VCR cable ..

WV-CA26T26

26-pin cable joint adaptor ..

WV-CA26T32

26-pin to 32-pin conversion cable ..

WV-CA26U15

Studio cable (15m) ..

WV-CA32T26

32-pin to 26-pin conversion cable ..

WV-CB700

Remote control box ..

WV-CC700

Carry case ..

WV-DKT700M

MI dock accessory kit ..

WV-DKT700S

S-VHS docking accessory kit ..

WV-PS31

Clip-on type. AC adaptor/quick battery charger (use with WV-PS33/PS34) ..

WV-PS33

3.5AH battery (use with WV-PS34, WV-BC30, WV-PS31) ..

WV-PS34

AC adaptor/battery charger ..

WV-PS60

1.65AH battery (use with WV-BC30, WV-PS34/PS31) ..

WV-PS700

Power separator ..

WV-Q70

RCU bracket ..

WV-Q71

5" EVF bracket ..

WV-QT700

Tripod adaptor ..

WV-RC700A

Remote control unit with multiplex coaxial control system ..

WV-VF40

1.5" electronic viewfinder ..

WV-VF65B

5" studio viewfinder ..

WV-VT15A

MI dock adaptor (use with WV-DKT700M and AU-410) ..

WV-VT16A

Betacam docking adaptor (WV-F700BH) ..

See page 2 for additional batteries and chargers.

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Broadcast & Television Systems Company

WV-F500 1/2" 3CCD Digital Signal Processing Color Video Camera

- Three 1/2" IT transfer CCD image sensors (380,000 pixels) with on-chip micro lens optics system
- Digital signal processing system for high quality images
- Docks directly to MII, S-VHS and Betacam dockable VCRs
- 5-scene file mode responds to a variety of shooting conditions
- 700 lines horizontal resolution and 62dB (typical) S/N ratio
- High sensitivity, 4 lux at f/1.4 (+24dB gain on)
- 2000 lux (at f/8 at 3200K) standard illumination
- Internal or external (BBS or VBS genlock) synchronization
- AWC-A or B and manual white balance
- 1/2" bayonet lens mount
- Direct docking with AU-45H MII VTR and AG-7450A S-VHS VTR
- Gain settings of 0/+6/+9/+15/+18/+24dB with +6dB switch
- Variable-speed electronic shutter (1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec.)
- Optional remote control unit and remote control box are available for digital control system flexibility
- 12VDC, 5 sources (RCU/VTR/EXT DC/battery/AC adaptor)

Standard Configuration

- Camera head
- Shoulder pad

WV-F500H\$7,370.00

System Accessory Kit for the WV-F500

WV-S550NL ENG Kit

- WV-VF40 1.5" electronic viewfinder
- WV-CC500 Carry case
- WV-QT700 Tripod adaptor
- WV-MH500 Microphone holder

WV-S550NL\$1,200.00

Dockable Packages

DS-5050 MII Dockable Package

- WV-F500H 3CCD camera head
- WV-S550NL ENG kit
- WV-DKT700S Docking kit
- AG-7450A S-VHS Hi-Fi portable VCR

DS-5050\$11,810.00

DM-5045 S-VHS Dockable Package

- WV-F500H 3CCD camera head
- WV-S550NL ENG kit
- AU-45H MII dockable recorder

DM-5045\$18,575.00

Lenses

FC-S10A	Lens rear control kit (use with S16X6.7BERM-24/SPB-2076V/S16X6.7BRM/S12X7.5BRM)	\$1,250.00
PH15X7BIRS	f/1.4 Canon servo zoom lens 15:1, 7-105mm with 2X extender	5,360.00
S16X6.7 BERM-24 SPB-2076V	f/1.4 Fujinon servo zoom lens 15:1, 6.7-107.2mm with extender	5,290.00
S16X6.7BRM	Lens rear control kit (use with PH15X7BIRS/FC-S10A)	1,830.00
S12X7.5BRM	f/1.4 Fujinon servo zoom lens 16:1, 6.7-107.2mm	2,610.00
WV-LC10	f/1.4 Fujinon 12:1 servo zoom lens, 7.5-90mm	1,460.00
WV-LC25	Lens conversion cable from 8-pin to 12-pin	120.00
WV-LK36	2/3" bayonet lens adaptor	560.00
YH17X7BKRS	Lens remote control	1,270.00
YH13X7.5BKRS	f/1.4 Canon servo zoom lens, 17:1, 7-119mm	2,590.00
	f/1.4 Canon servo zoom lens 13:1, 7.5-97mm	1,220.00

3CCD CAMERA



WV-F500
With AU-45H

Accessories

AU-M402

Battery adaptor. In order to use the AU-BP402 battery pack with the WV-F500 and AU-45H, the AU-M402 battery adaptor must be used

\$ 475.00

WV-AD500

WV-AD700AS

Camera adaptor

1,150.00

Camera adaptor for use with multiplex coaxial control system

3,535.00

WV-BA71

WV-BA72

Battery case for AU-BP402

430.00

Battery case for AU-BP220V

430.00

WV-CA10B25

WV-CA10B50

WV-CA10T14

WV-CA26A10

WV-CA26A14

WV-CA26A26

WV-CA26T26

WV-CA26T32

WV-CA26U15

WV-CA32T26

WV-CB700

WV-CC500

WV-DKT700S

WV-MH500

WV-PS700

WV-QT700

WV-Q70

WV-Q71

WV-RC700A

RCB cable (25m)

150.00

RCB cable (50m)

210.00

10-pin to 14-pin conversion adaptor

100.00

26-pin to 10-pin VCR cable

180.00

26-pin to 14-pin VCR cable

230.00

26-pin VCR cable

430.00

26-pin cable joint adaptor

130.00

26-pin to 32-pin conversion cable

180.00

Studio cable (15m)

710.00

32-pin to 26-pin conversion cable

180.00

Remote control box

1,370.00

Carry case

800.00

S-VHS docking accessory kit

490.00

Mic holder

160.00

Power separator

1,225.00

Tripod adaptor

220.00

RCU bracket

380.00

5" EVF bracket

130.00

Remote control unit with multiplex coaxial control system

5,970.00

WV-VF40

WV-VT15A

WV-VT16A

1.5" electronic viewfinder

870.00

MI dockable adaptor and accessory kit

1,670.00

Betacam docking adaptor

1,670.00

Anton/Bauer Batteries

DM-13 Digital Mag 13

13.2V, 66Wh digital battery for 2.25 hours of operation

\$605.00

DPP-13 Digital ProPak 13

13.2V, 55Wh digital battery for 2 hours of operation

575.00

Com-13 Compac 13

13.2V, 40Wh NiCad battery for 1.5 hours of operation

275.00

QR-AU45H

Gold mount battery bracket

195.00

Anton/Bauer Chargers

Mag-Quad Magnum Quad

4 position, 1 hour sequential fast charger

\$1,295.00

MP-4D

Same as Magnum Quad with LCD display

2,370.00

Panasonic

Broadcast & Television Systems Company

3CCD CAMERA

WV-F300 2/3" 3CCD Color Video Camera

• Three 2/3" semi-frame IT CCDs with 344,835 pixels each • f/1.4 prism • 700 lines resolution • 25 lux minimum illumination (f/1.7, +18dB) • 60dB S/N • 1/250, 1/500, 1/1000 sec. shutter • Auto white balance (can be preset at 3200K and will remember 2 settings) • Auto black balance with pulse cancel • 1.5" EVF with camera functions monitored • 3 gains: 0, +9dB, +18dB • Detail high/low/off switch • Color matrix masking • S-VHS compatible or NTSC switchable output • 2 VCR start switches • Flare correction • SC-H phase adjuster • SMPTE color bars • Iris 1/2 open/close switch • Genlockable • MII compatible with optional adaptor • Usable as studio camera with optional WV-RC36 remote control unit

Standard Configuration

• Camera head • Camera adaptor

WV-F300 \$6,800.00

System Accessory Kits for the WV-F300

WV-S350A ENG/EFP Kit

• J12X10BKRSRM 12X servo zoom lens • WV-MC35 Microphone • WV-VF39 1.5" viewfinder • WV-PS60 1.65AH battery • WV-Q47 Tripod mounting adaptor • WV-PS31 AC adaptor with quick charger • WV-CC37 Carry case \$3,320.00

WV-S390 S-VHS Dockable Kit

• WV-VF38A 1.5" viewfinder • J12X10BKRSRM 12X servo zoom lens • WV-Q47 Tripod mounting adaptor • WV-MC35 Microphone • WV-VT12M S-VHS adaptor and battery holder \$2,970.00

Lenses

A16X9BERM	f/1.8 Fujinon servo zoom lens with extender, 16:1, 9-144mm \$	5,290.00
A16X9BRM	f/1.8 Fujinon zoom lens, 16:1, 9-144mm.	2,490.00
FC-S10A	Lens rear control kit (use with A16X9BRM)	1,250.00
WV-LC10	Lens conversion cable from 8-pin to 12-pin	120.00
J12X10BKRSRM	f/1.7 Canon servo zoom lens, 12:1, 10-120mm.	1,570.00
J15X9.5BIRS	f/1.8 Canon zoom lens with 2X extender, 15:1, 9.5-121mm.	5,360.00
J15X9.5BKRSII	f/1.8 Canon zoom lens, 15:1, 9.5-143mm.	2,310.00
J18X8.5BIRS	f/1.7 Canon zoom lens, 18:1, 8.5-153mm with 2X extender	13,900.00
NS15X8.5B1 EMS20	f/1.7 Nikon zoom lens, 15:1, 8.5-127.5mm with 2X extender	7,995.00
NRLCKIT3F	Lens rear control kit (use with NS15X8.5B1EMS20)	2,265.00
SPB-2076V	Lens control kit (use with above J-Series Canon lenses)	1,830.00
WV-LK35	Lens rear control kit (use with J12X10BKRSRM)	1,210.00
YJ17X9.5BKRS	f/1.8 Canon zoom lens, 17:1, 9.5-162mm	2,590.00



WV-F300

Accessories

10H-30AS	30' 10P-10P extension cable.	\$ 110.00
10H-50AS	50' 10P-10P extension cable.	180.00
32A-25	25' 32P-32P RCU cable	490.00
32A-50	50' 32P-32P RCU cable	660.00
32A-100	100' 32P-32P RCU cable	950.00
AG-B640	AC adaptor with battery charger.	515.00
AG-BP212	12V, 2.3AH battery.	70.00
DE-1232	Battery charger for WV-PS60	80.00
PAN-CLE	Anton/Bauer SQ-13FV battery adaptor	160.00
WV-AD19	Battery case.	480.00
WV-BC30	Battery charger for WV-PS33	130.00
WV-CA14X30	30' 14-pin extension cable for use with WV-CA32A/14.	330.00
WV-CA32/10	32-pin camera to 10-pin VCR cable (10')	100.00
WV-CA32A/14	32-pin camera to 14-pin VCR cable (10')	180.00
WV-CA38	Conversion cable for desktop VCR monitor. Must use with WV-CA32A/14.	200.00
WV-CC37	Carry case	360.00
WV-CC38	Hard shell carrying/shipping case.	880.00
WV-MC35	Microphone	110.00
WV-PS31	AC adaptor with quick charger	490.00
WV-PS33	3.5AH battery	560.00
WV-PS34	AC adaptor/battery charger	600.00
WV-PS60	1.65AH battery.	250.00
WV-Q47	Tripod adaptor	180.00
WV-RC36	Remote control unit.	2,180.00
WV-VF65B	5" studio viewfinder	920.00
WV-VT10	MII dockable adaptor	2,310.00

See page 2 for additional batteries and chargers

Panasonic

Broadcast & Television Systems Company

3CCD CAMERA

WV-F250BH 1/2" 3CCD Color Video Camera

• Three 1/2" FIT CCDs with 380,000 pixels each • 750 lines horizontal resolution • 2000 lux, f/5 at 3200K sensitivity • -6dB switch for settings of 0dB, +9dB and +18dB, plus combinations for -6dB, +3dB and +12dB gain control • 60dB S/N ratio • Compatible with VHS, S-VHS, **MII**, Betacam and most VCRs • Variable speed electronic shutter 1/60, 1/100, 1/250, 1/500, 1/1000 and 1/2000 sec. • Y/C separation output circuit • SMPTE color bar generator with time/date display and camera identification display (provides ID for up to 4 separate cameras) • VCR start switches • Top, front and back tally lamps, bright light compression circuit • High efficiency peltier element • 2-setting white balance memory • Adjustable shoulder pad position • Auto black balance with auto pulse cancel • Color matrix masking circuit • Flare correction circuit • Iris 1/2 open/close switch • High band detail (high/low) • Detail select (high/low/off) • Bayonet mount for 1/2" pickup (optional 2/3" bayonet mount available) • High-resolution (450 lines) 1.5" electronic viewfinder with character display and zebra level • Audio input: -70dBm mic, 9-pin connector • Audio output: -20dBm or -60dBm/unbalanced, switchable (32-pin VCR/RU connector) • Readily becomes an exceptional studio camera, or remotely controlled stationary camera, via connection with the optional WV-RC36 or WV-RC37 camera control units

Standard Configuration

• Camera head
WV-F250BH \$4400.00

System Accessory Kits for the WV-F250BH

WV-S250 ENG/EFP Kit

• WV-AD250 Camera adaptor • S12x7.5BRM 12X zoom lens • WV-VF39 1.5" high-resolution electronic viewfinder • WV-MC35 Condenser microphone • WV-PS31 AC adaptor/quick charger • WV-PS60 Battery pack • WV-QT70 Tripod mounting adaptor • WV-CC71A Carry case \$4230.00

WV-S270 Studio Kit

• WV-AD250 Camera adaptor • S12x7.5BRM 12X zoom lens • WV-LK36 Lens control kit • WV-VF65B 5" electronic viewfinder • WV-RC36 Remote control unit • WV-QT70 Tripod mounting adaptor • 32A-25 Studio cable • Extender board \$6920.00

WV-S290 **S-VHS** Dockable Kit (for WV-F250BH/AG-7450A)

• WV-VF39 1.5" high-resolution electronic viewfinder • S12x7.5BRM 12X zoom lens • WV-MC35 Condenser microphone • WV-QT70 Tripod mounting adaptor • WV-CC71A Carry case • WV-DKT70M Docking accessory kit \$2970.00

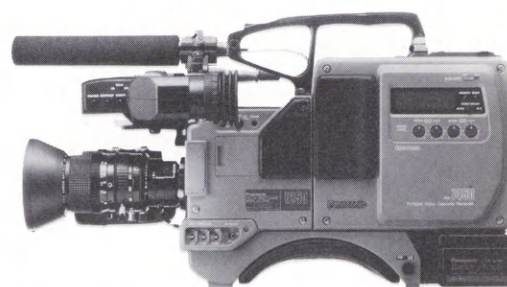
Dockable Package

DS-2550B **S-VHS** Dockable Package

• WV-F250BH 3CCD camera head • WV-S290 Docking kit • AG-7450A S-VHS Hi-Fi portable VCR \$9450.00

Lenses

FC-S10A Lens rear control kit (use with S16X6.7BERM-24/SPB-2076V/S16X6.7BRM/S12X7.5BRM) \$1250.00
PH15X7BIRS f/1.4 Canon servo zoom lens 15:1, 7-105mm with 2X extender \$5360.00
S16X6.7BERM-24 f/1.4 Fujinon servo zoom lens 16:1, 6.7-107.2mm with extender \$5290.00
SPB-2076V Lens rear control kit (use with PH15X7BIRS/FC-S10A) \$1830.00
S16X6.7BRM f/1.4 Fujinon servo zoom lens 16:1, 6.7-107.2mm \$2610.00
S12X7.5BRM f/1.4 Fujinon 12:1 servo zoom lens, 7.5-90mm \$1460.00
WV-LC10 Lens conversion cable from 8-pin to 12-pin \$120.00
WV-LC25 2/3" bayonet lens adaptor \$560.00



WV-F250BH With **S-VHS** Dockable AG-7450A VCR

WV-LK36 Lens remote control \$1270.00
YH13X7.5BKRSF f/1.4 Canon servo zoom lens, 13:1, 7.5-97mm \$1220.00
YH17X7BKRS Canon f/1.4 zoom lens, 17:1, 7-119mm \$2590.00

Accessories

10H-30AS 10-pin extension cable (30') \$110.00
Use with WV-CA32/10 \$110.00
10H-50AS 10-pin extension cable (50') \$180.00
Use with WV-CA32/10 \$180.00
32A-25 25' remote control unit cable \$490.00
32A-50 50' remote control unit cable \$660.00
32A-100 100' remote control unit cable \$950.00
AG-B640 AC adaptor with battery charger \$515.00
AG-BP212 2.3AH battery (use with AG-B640) \$70.00
AG-B745 Battery charger for AU-BP220V \$660.00
AU-BP220V 2.2AH battery (use with WV-DKT70M) \$185.00
DE-1232 Battery charger (use with WV-PS33) \$80.00
WV-AD19 Battery case for AG-BP212 or Sony NP-1 \$480.00
WV-AD250 Camera adaptor \$820.00
WV-BA71 Battery case for AU-BP402 \$430.00
WV-BA72 Battery case for AU-BP220V \$430.00
WV-BC30 Battery charger (use with WV-PS31) \$130.00
WV-CA14x30 14-pin extension cable (30') Must use with WV-CA32A/14 \$330.00
WV-CA32/10 32-pin camera to 10-pin VCR cable (10') \$100.00
WV-CA32 32-pin camera to 14-pin VCR cable (10') \$180.00
A/14 (for AG-7450A/S745, 3/4" VCR)
WV-CA38 Conversion cable for S-VHS VCR, S-VHS monitor, S-VHS projector (use with WV-CA32A/14) \$200.00
WV-CC71A Carry case \$640.00
WV-DKT70M Dockable kit for AG-7450A \$410.00
WV-MC35 Microphone \$110.00
WV-PS31 Clip-on type AC adaptor/quick battery charger (use with WV-PS33, WV-PS60) \$490.00
WV-PS33 3.5AH battery (use with WV-BC30, WV-PS31) \$560.00
WV-PS34 AC adaptor/battery charger (use with WV-PS33, WV-PS60) \$600.00
WV-PS60 1.65AH battery (use with DE-1232, WV-PS31) \$250.00
WV-QT70 Tripod mount adaptor \$200.00
WV-Q71 5" EVF bracket \$130.00
WV-RC36 Camera remote control unit. RGB sync output, maximum distance from RCU to camera is 300 meters \$2180.00
WV-RC37 Camera remote control unit. Does not offer RGB sync output, maximum distance from RCU to camera is 100 meters \$1060.00
WV-VF39 1.5" viewfinder, high-resolution \$820.00
WV-VF65B 5" studio viewfinder \$920.00
WV-VT15A **MII** docking adaptor and accessory kit \$1670.00
WV-VT16A Betacam docking adaptor \$1670.00

See page 2 for additional batteries and chargers.

Panasonic

Broadcast & Television Systems Company

CCD CAMERA

WV-D5100HS 2/3" High Sensitivity CCD Color Video Camera

• Component video camera system • 3 kit configurations • Compatible with S-VHS VCRs • 380,000 pixels • 460 lines horizontal resolution • Illumination required: 1400 lux at f/5.6 • Minimum object illumination: 0.35 fc (3.5 lux) • S/N 46dB • 4 lenses available: WV-LZ14/8AF, 8X auto focus zoom lens lets you focus automatically for easy and accurate shooting, 3-step auto focus through the viewfinder permits precise focusing; WV-LZ14/12A, 12X power zoom lens operates smoothly in both wide angle and telephoto modes; WV-LZ15/12, 12X auto iris designed for studio applications; WV-LZ14/15 for a higher multiplication ratio of 15X • Optional 1.5X teleconverter can be used with WV-LZ14/8 AF and WV-LA14/12A • Auto-tracing white balance system • 2H enhancer with horizontal/vertical movement • Up to 1/2000 sec. electronic shutter speed • Interchangeable 35mm SLR and C-mount lenses with optional adaptor • Auto preset function

WV-D5100HS\$1790.00

WV-D5100HSRGB With RGB sync output.....2090.00

System Accessory Kits for the WV-D5100HS/WV-D5100HSRGB

WV-S051 ENG Kit

• WV-VF02 1" B/W viewfinder • WV-MC12 Stereo microphone • Shoulder pad/grip • Camera strap • Cheek pad

WV-S051\$490.00

WV-S061 EFP Kit

• WV-VF02 1" B/W viewfinder • WV-MC12 Stereo microphone • Shoulder pad/grip • WV-AD36 Genlock adaptor • WV-PS03 AC adaptor • WV-CA10 VCR cable

The genlock adaptor does not supply a Y/C signal. The Y/C signal is supplied directly from the camera head.

WV-S061\$820.00

WV-S071 Studio Kit

• WV-LZ15/12 Studio lens • WV-LK11 Lens control kit • WV-VF65B 5" studio viewfinder • WV-Q39A 5" viewfinder bracket • WV-RC35 Remote control unit • WV-AD37 RCU adaptor • 14C-30 Studio cable

The RCU does not supply a Y/C signal. The Y/C signal is supplied directly from the camera head.

WV-S071\$3660.00

Lenses

WV-CL19	1.5X tele-conversion lens.	\$ 180.00
WV-LK10A	Lens filter kit (use with WV-LZ14/8AF).	180.00
WV-LK11	Lens control kit (use with WV-LZ15/12) . . .	1070.00
WV-LT21*	35mm SLR lens adaptor (Canon)	60.00
WV-LT22*	35mm SLR lens adaptor (Nikon).	60.00
WV-LT23*	35mm SLR lens adaptor (Minolta)	60.00
WV-LT24*	35mm SLR adaptor (Olympus)	60.00
WV-LT25*	35mm SLR adaptor (Pentax).	60.00
WV-LZ14/8AF	8X auto focus zoom lens	670.00
WV-LZ14/12A	12X power zoom lens.	700.00
WV-LZ15/12	12X studio lens.	930.00
WV-LZ14/15	15X power zoom lens.	1190.00



WV-D5100HS

Accessories

10H-30AS	30' VCR extension cable	\$110.00
10H-50AS	50' VCR extension cable.	180.00
14C-30	30' studio cable.	160.00
14C-100	100' studio extension cable	280.00
WV-831P	Camera mounting bracket	60.00
WV-3203B	AC adaptor/stereo audio	120.00
WV-AD10	Beta format VCR adaptor.	80.00
WV-AD15A	Film/slide adaptor	250.00
WV-AD16A	C-mount lens adaptor	30.00
WV-AD36	Genlock adaptor	260.00
WV-AD37	RCU adaptor	340.00
WV-CA10	8' 10-pin/10-pin VCR cable	40.00
WV-CA11	10-pin/14-pin conversion cable, 1', used with WV-CA10 for 3/4" VCR (14-pin)	50.00
WV-CA14X30	14-pin VCR extension cable for use with WV-CA11	330.00
WV-CA14A/14	14-pin/14-pin VCR cable	120.00
WV-CC29A	Carry case	230.00
WV-CR12	Camera/VCR remote controller—pan/tilt head control, WV-LZ14/8AF zoom and focus control, intermittent recording, rec, fade, rec/review VCR controls.	530.00
WV-KB12A	Full keyboard titler with scroll	230.00
WV-MC12	Stereo microphone.	40.00
WV-PH10	Pan/tilt head	800.00
WV-PS03	AC adaptor.	260.00
WV-Q39A	5" viewfinder bracket	220.00
WV-RC35	Camera remote control unit.	650.00
WV-VF02	1" B/W viewfinder.	330.00
WV-VF65B	5" studio viewfinder	920.00

*Must be used with WV-AD16A

Panasonic

Broadcast & Television Systems Company

CCD CAMERAS/COPY-STAND/ QUAD SYSTEM

GP-KS102 1/2" CCD Color Microcamera Head

- 1/2" integrated color filter interline transfer for CCD 682(H) x 485(V) pixels
- 430 lines horizontal resolution • S-VHS (Y/C connector) compatible • 46dB S/N • Minimum illumination of 10 lux at f/1.4 AGC on, +6dB manual gain, >30 IRE of Y-signal with setup • Genlock capability for multi-camera systems
- 2 1/3" diameter x 1 7/16" long • Weighs just over half an ounce

Standard Accessories

- Camera head/holder • Camera control unit \$2750.00

GP-KS152 1/2" CCD Color Digital Microcamera

- Digital signal processing • 430 lines horizontal resolution • Genlockable • S-Video output • 46dB S/N • 5 lux (0.5fc) minimum illumination • Camera head measures 0.66" in diameter, 1.5"L • 0.04 lbs. • 336,000 pixels • 8-stage variable electronic shutter, 1/60-1/10000 sec. • 2H enhancer, aperture correction, knee circuitry • Selectable TTL auto-tracing, ATW, AWC or manual white balance control • AGC control: off/low/mid/hi selectable • Gain control: low/mid/hi selectable • Automatic backlight compensation • Electronic light control • 12VDC • Selectable function from direct mode and setup mode • 2 optional keyboard-type character generators

Standard Accessories

- Tripod attachment • Lens cleaning paper \$3800.00

WV-CD1BW 1/2" CCD B/W Microcamera System

- Camera head measures 2 1/3"D x 1 1/2"L (without lens) • Camera head can be extended up to 30' from CCU using optional 24' extension cable • Operates off any 12VDC power source such as an automobile or VCR battery • Wide angle, super wide angle and pinhole lenses available • Optional C-mount lens adaptor available • Designed for covert security installations where size, sensitivity and picture quality are essential • Other applications include automatic teller machines, robotics machine vision, inspection, quality control and hazardous waste monitoring • 510(H) x 492(V) pixel array • 0.07 lux low light sensitivity at f/1.4 minimum illumination (with optional GP-AD22 lens) • 380 lines horizontal resolution • 46dB S/N ratio • Genlock feature eliminates roll in multi-camera systems that use sequential switching

Standard Accessories

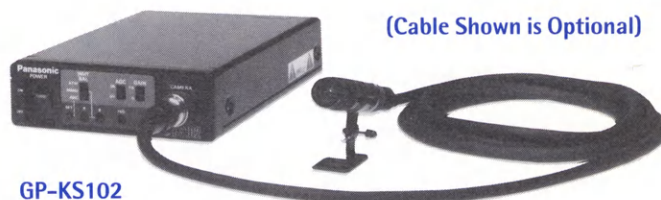
- Camera head with cable (2m) • Camera holder • Camera control unit \$2500.00

Accessories

GP-AD22	C-mount lens adaptor (GP-KS102/WV-CD1BW).	\$ 40.00
WV-LM	Wide angle manual lens f/7.5mm	
7.5T	(WV-CD1BW)	240.00
WV-PS12	AC adaptor 120VAC/12VDC	
	(GP-KS102/WV-CD1BW)	65.00
GP-LM7R		
5TB	7.5mm lens (all models)	240.00
GP-CA44	2m cable (GP-KS102)	285.00
GP-CA45	5m cable (GP-KS102)	320.00
GP-CA46	10m cable (GP-KS102)	470.00
GP-CA49	30m cable (GP-KS102)	860.00
GP-CA56	2m cable (GP-KS152)	300.00
GP-CA57	10m cable (GP-KS152)	450.00
GP-LP12T	Pinhole lens (GP-KS102, WV-CD1BW).	590.00
GP-LM15T	15mm telephoto lens (GP-KS102, WV-CD1BW)	285.00
GP-LM3T	3mm wide angle lens (GP-KS102, WV-CD1BW)	340.00
WV-KB12A	Full keyboard titler with scroll (GP-KS152)	230.00
WJ-KB15	Full keyboard titler with scroll (GP-KS152)	360.00

GP-KR212 1/2" Digital Industrial CCD Color Camera

- 682H x 492V pixels • 430 lines horizontal resolution • Microlens on each pixel triples the intensity of incoming light • 46dB S/N • Minimum scene illumination 3 lux, f/1.4, 0.09fc available using Panasonic aspherical high speed lens • Color can now be used in many dark areas that once required black and white cameras • Auto-tracing white balance control on/off • Electronic light control function regulates the amount of incoming light without the use of an ALC lens. This permits use of an inexpensive fixed iris or manual iris lens for indoor



GP-KS102

(Cable Shown is Optional)



WV-CD1BW

- surveillance • Auto backlight compensation function adjusts ALC/ELC light control with center-weighted detecting balance • C-lens mount • Horizontal aperture correction and vertical 2H enhancer for sharp edge lines of an object • Knee circuitry and aperture highlight correction to precisely reproduce grayscale renditions when viewing brightly illuminated objects • Minimum artificial camera noise • 12VDC operation • 12-pin camera cable connector. \$1200.00

GP-KR412 1/2" Digital Industrial CCD Color Camera

- Same as above with: • 48dB S/N • Cursor control (up, down, right, left, set); switches for on-screen menu setup, genlock 75-ohm on/off, auto iris DC/video • Character generator (up to 16 characters) • AWC/ATW/manual selectable • 8-speed electronic shutter from 1/60 sec. (off) to 1/10000 sec. • Genlock capability for multi-camera systems: color composite video signal (VBS), B/W composite video sync signal (VS), internal sync (INT) • AGC control: low/mid/hi selectable • Gain control: low/mid/hi selectable • C- or CS-mount lens \$1250.00

WE-160 Video Imager Copy-Stand Display System

- Digital signal processing • 1/2" IT CCD • 682H x 492V pixels • 430 lines horizontal resolution • Rotatable camera head • Internal genlock switchable automatically • 46dB S/N • Minimum illumination: 3 lux at f/1.4 (AGC on) • White balance selectable • AWC/ATW/manual • Up to 16-character display • 8mm-80mm • f/1.4 (wide), f/1.7 (tele) • Integrated 10X power zoom lens • Built-in light kit • Built-in A/V switcher • Video inputs: 2 video/2 S-Video Y/C • Video outputs: 1 video/1 S-Video Y/C • Audio inputs: 2 switchable • Audio output: 1 switchable \$3500.00

WE-163 Backlight unit \$510.00

WJ-450 Digital Color Quad System

- Allows up to 4 different camera or VCR outputs to be displayed on one monitor • Suitable for use with virtually any 2:1 interlace camera without external synchronization • Genlock input terminal allows external synchronization of different video sources, such as cameras, VCRs, video floppy disk recorders • Advanced digital processing technology • Remote control for selecting quad mode, individual input mode and freeze-frame • Front panel switch calls up white borderline as a helpful quad-mode screen divider; also enables quick selection of the display mode: Quad or Individual (full-screen) • Built-in character generator allows alphanumeric display of up to 6 characters on each of the 4 screen blocks, to permit quick identification of the input • Built-in back-up memory for title display • Sync output terminal \$2050.00

Panasonic

Broadcast & Television Systems Company

CCD CAMCORDERS

AG-460U 1/2" 2CCD S-VHS Hi-Fi Camcorder

• Two 1/2" CCDs with 360,000 pixels each • 45dB video S/N • 470 lines resolution • 2-hour • Camera search (advanced rec./review) • 25 lux minimum illumination • 4 laminated amorphous video heads • Audio level controls with LCD metering • Mic sensitivity is extremely accurate because Hi-Fi stereo mic performance is automatically adjusted while the camera's zoom lens is in operation • 2-speed 10X power zoom lens (f/1.4) with macro function • 0.9" EVF • Automatic iris with manual override • Piezo auto focus with advanced 3-step focus zone • Advanced auto-tracing white balance with manual override • Rotary erase head for noiseless insert editing, audio dubbing and sound-on-sound • 1/250, 1/500 and 1/1000 second shutter • B/W audio/video fade-in and fade-out • Push auto button for temporary autofocus in manual mode • Index search function • 0dB, +18dB, AGC sensitivity switch • S-Video out terminal/synchro edit/5-pin edit terminal/edit switch/character generator direct connecting capability

Standard Accessories

• AG-B3A AC adaptor • AG-BP212 Battery pack • System carry case • Line adaptor • Shoulder strap • Pause remote control unit • Audio cable • Y/C cable • VHF coaxial cable • Battery pack charging connector • 300 ohm to 75 ohm transformer • Earphone. \$3850.00

AG-455U 1/3" CCD S-VHS Hi-Fi Camcorder

• 2-hour • Hi-Fi audio with stereo zoom mic • Built-in monitor speaker • 12VDC • Low light shooting • Minimum illumination: 1 lux with digital gain on • Audio/video fade • Built-in VITC generator for high precision edit control when editing on AG-7750 editing system • 5-pin edit terminal • Built-in digital effects: mix, wipe, after-image tracer, strobe and still store while recording audio • 4 rotary heads • 1 track (normal) audio and 2-channel Hi-Fi audio • 50-20,000Hz frequency response • 12:1 2-speed power zoom lens with digital zoom (up to 100X) • Digital auto focus • f/1.6 • Focal length 5.5-67mm • Auto-manual iris • Filter diameter 49mm • Mic in • Audio/video/S-VHS outputs • Approximately 5.9 lbs.

Standard Accessories

• AC adaptor • Battery pack with charging connector • DC cable • Shoulder strap • System carry case. \$2450.00

AG-195U 1/3" CCD VHS Camcorder

• 2-hour • 12VDC • Low light shooting • Minimum illumination: 1 lux with digital gain on; 3 lux with digital gain off • 1/100-1/8000 shutter • Audio/video fade • Built-in digital effects: mix, wipe, after-image trace, strobe and still store while recording audio • 4 rotary heads • 1 track (normal) audio • 80-8,000Hz frequency response • 8:1 2-speed zoom lens with digital zoom (up to 100X) • Manual iris/white balance • 5-pin edit terminal • Digital auto focus • f/1.4 • Focal length 5-40mm • Auto iris • Filter diameter 49mm • Mic in • Audio/video outputs • Approximately 5.7 lbs.

Standard Accessories

• Detachable 10W auto-light • AC adaptor • Battery pack with charging connector • System carry case • Shoulder strap. \$1500.00

AG-186UC 1/3" CCD VHS Camcorder

• 2-hour • 12VDC • 270,000 pixels • 4 rotary heads • Rotary erase head for transitions • Minimum illumination: 1 lux • Standard illumination: 1500 lux • 230 lines horizontal resolution • 7 shutter settings between 1/60-1/10000 sec. • 12X power zoom lens with macro capability • 10W color enhancement light • Full range auto focus • Auto-tracing white balance • Easy audio dubbing and video editing • Easy confirmation of recorded scenes • Self-timer recording • 2/3" electronic viewfinder with status indicator • Time-lapse recording capability • Automatic date/time display • Backlight compensation (iris override) • Videofade • EVF messages



AG-455U



AG-3

• Book mark search • Built-in mic • Up to 120 minutes of recording from 1 battery • A/V input compatible for recording from TV (with standard accessory, AC adaptor, AG-B20) • Unidirectional high-sensitivity mic • External mic input

Standard Accessories

• AG-B20 AC adaptor • AG-BP20 Battery pack • AG-HT8 System carry case • Auto light. \$1085.00

AG-3 1/3" 3CCD S-VHS Hi-Fi Camcorder

• Three 1/3" CCDs • 530 lines horizontal resolution • 4 rotary heads • 1 lux low light sensitivity • 10:1 2-speed power zoom lens with digital auto focus • f/1.6 (wide)-2.7 (tele) • 20X digital zoom • Focal length: 6mm-60mm • 1400 lux standard illumination • Digital TBC • Video S/N: more than 45dB • Audio S/N: more than 41dB • Stereo zoom mic/Hi-Fi recording • Digital effects: snapshot, strobe, picture memory, wipe, mix • Electronic image stabilization • 0.7" color LCD viewfinder • Wide screen 16'x9' recording capability. \$3500.00

Accessories

AG-B3A	AC adaptor/battery charger (AG-460U)	\$ 245.00
AG-B6	AC adaptor/battery charger (AG-195U/455U)	165.00
AG-B7	AC adaptor/battery charger (AG-3)	105.00
AG-B12	Plug-in AC adaptor/battery charger 12VDC, 1.5AH (AG-195U/455U/460U)	210.00
AG-B20	AC adaptor/battery charger (AG-186UC)	130.00
AG-BP20	Battery pack (AG-186UC, AG-195U/455U)	60.00
AG-BP30	Battery pack (AG-3)	70.00
AG-BP212	Battery pack 12V, 2.3AH (AG-460U)	70.00
AG-C70AE	S-Video (Y/C) cable (10') (AG-455U/460U)	20.00
AG-C71AE	S-Video (Y/C) cable (16.6') (AG-455U/460U)	25.00
NV-STC30ZXT	30 min. S-VHS-C tape (AG-3)	8.99
STDY-JR	Steadicam Jr. (AG-3)	499.00
UW-MC1	Marine case (AG-3)	1299.00
VW-ACM1	Car battery cord (AG-186UC/460U)	35.00
VW-		
ACM10P	Car battery cord (AG-195U/455U)	35.00
VW-CG5P	Character generator (all models except AG-186UC)	330.00
VW-RF7	RF adaptor (AG-455U/195U)	60.00
VW-RM1E	Pause remote controller (all models except AG-186UC)	12.00
VW-TCA7E	Cassette adaptor (AG-3)	40.00

Panasonic

Broadcast & Television Systems Company

VHS EDITING RECORDER/ PLAYER/CONTROLLERS

AG-7750H Professional VHS Recorder/Player/ Editor (Preliminary)

- 3-dimensional type, full field (262.5 line), digital time base corrector • Full field drop-out compensation • Special laminated amorphous video heads • 51-53dB signal-to-noise performance (typical)
- Fast response time using the unique IQ transport • RS-422A, serial (9-pin) control

AG-7750H\$7500.00

AG-7650H Professional VHS Player

- Player only version of AG-7750H

AG-7650H\$5550.00

AG-A750 Editing Controller

- Edit point setting with large jog and search dial • Frame trim for simple revision of edit in and out points • Auto-prompting illuminated switches • Preview of programmed edit prior to actual editing • Easy, automatic review • LED frame counter (green) readout in hours, minutes, seconds and frames • Free choice of editing mode • Preroll for both source machine and editor • Lap time display • Audio monitor level adjustment for both source machine and editor • Trigger output • On-line connection of up to 3 machines (using optional NV-J500 Multi-Source Switcher and NV-A505 Remote Search Controller)

AG-A750.....\$2350.00

AG-A770 Multi-Event, Serial Edit Controller

- 128-event edit memory • RS-422 (9-pin) serial control capability • Performs editing control using SMPTE time code (or CTL) • Audio split editing • Auto tag and event increment functions • Separate jog/shuttle dials and mark in/out buttons for player side and recorder side

AG-A770.....\$3150.00

For Multi-Source A/B Roll Editing
See AG-A800 on Page 14.

Accessories

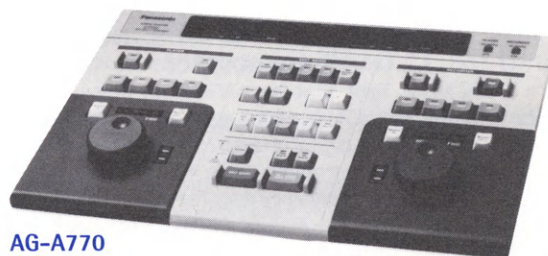
AG-A600E	Remote control unit with search dial, (10').	\$ 260.00
AU-C5	9-pin serial cable (16') (AG-A770)	105.00
AU-C10	9-pin serial cable (32') (AG-A770)	145.00
AU-C30	9-pin serial cable (96') (AG-A770)	265.00
AG-C65	7-pin dubbing cable (10')	60.00
AG-C70AE	S-Video (Y/C) cable (10')	20.00
AG-C71AE	S-Video (Y/C) cable (16.6')	25.00
AG-F700	Time code generator/reader (AG-7750H/7650H).	795.00
AG-IA82	9-pin interface board (16.6') (AG-A770).	350.00



AG-7750H



AG-7650H



AG-A770

AG-J700	Multi-source selector.	\$1480.00
AG-M750E	Rack-mount ears (AG-7750H/7650H).	105.00
NV-A505	Full-function remote search controller with LED readout and dial (16.4').	1200.00
NV-C80	Remote control extension cable (16.4').	165.00
NV-J500	Multi-source audio/video switcher (AG-A750).	690.00
WV-CA32A/14	32-pin camera to 14-pin VCR with Y/C (10').	180.00
WV-CA38	Conversion cable for desktop VCR (use with WV-CA32A/14).	200.00

Panasonic

Broadcast & Television Systems Company

S^{VHS} /VHS RECORDER/ PLAYER/VIDEO TAPE

AG-7350 2-Hour S^{VHS} Hi-Fi Recorder/Player

- High performance digital servo circuitry • Random auto repeat (zero stop/set rewind/repeat) • 4-channel audio (2 Hi-Fi/2 linear channels) with Dolby NR • Sub-loading system • 5-digit real time counter with remaining-time indication • Edit switch • Virtually noiseless forward slow/reverse slow and frame shift • 34-pin remote control connector • Switchable audio monitoring: CH1/CH2/Mix • Headphone level control • 3 video modes: Color/Auto/B-W • 19" rack-mountable (with optional adaptor) • 58μm wide laminated amorphous video heads • 90dB dynamic range • Jog/shuttle • 17-step shuttle dial with variable speeds from 1/25 to 11X • Full loading tape mechanism offers stop to play mode with picture on screen in less than 2 seconds • Soft pause • Auto repeat play/counter memory functions • Advanced chroma aperture circuit (CAC) and comb filter for outstanding color reproduction • Digital circuitry for Y/C separation • 6-hour playback capability (normal audio only) • Wide 42μm heads for Hi-Fi audio (SP/2-hour mode) • Optional LTC time code recording/playback using linear CH2 (with optional RS-232C serial interface board) • Sensor recording • On-screen menu display • 48-hour memory backup for counter • Mode lock for front panel controls • Self-illuminated switches • 11-bit digital servo • Motherboard construction

AG-7350\$3150.00

AG-7150 2-Hour S^{VHS} /VHS Hi-Fi Player

• Player only version of AG-7350\$2450.00

Accessories (all models)

AG-A600E	Remote control unit with search dial (10')	\$ 260.00
AG-A750	Full function editing controller, single event (16.4')	2350.00
AG-C70AE	S-Video (Y/C) cable (10')	20.00
AG-C71AE	S-Video (Y/C) cable (16.6')	25.00
AG-IA232TC	RS-232C/LTC time code interface unit.	560.00
AG-M730E	19" rack-mount bracket	105.00
NV-A505	Full function remote search controller with LED readout and dial (16.4').	1200.00
NV-A850	Programmable auto search controller (6.6')	700.00
NV-C80	Remote control extension cable (16.4')	165.00
NV-J500	Multi-source audio/video switcher	690.00
WV-CA38	Conversion cable for desktop VCR	200.00

NV Series S^{VHS} Professional Blank Video Tape*

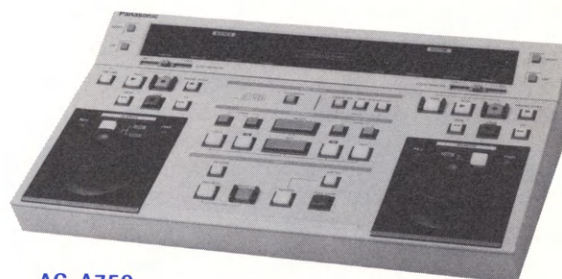
NV-ST120M	Professional 120-minute	\$18.00
NV-ST60M	Professional 60-minute	16.00
NV-ST20M	Professional 20-minute	13.00



AG-7350



AG-7150



AG-A750

NV Series S^{VHS} Blank Video Tape

NV-ST120ZX	120-minute	\$10.99
NV-ST60ZX	60-minute	9.99
NV-ST30ZX	30-minute	11.00

NV Series VHS Blank Video Tape*

NV-T120ZHT	20-minute high grade	\$4.99
NV-T120ZST	120-minute standard	3.99
NV-T60ZS	60-minute standard	3.95
NV-T30ZS	30-minute standard	3.89

*Shipped in standard packing quantities 10 to a carton.

Panasonic

Broadcast & Television Systems Company

S-VHS /VHS VCRs/ DUPLICATION RECORDERS

AG-7450A Dockable S-VHS Hi-Fi Recorder/Player

• Improved pre-roll time (1.5 seconds) • S-VHS picture quality • Directly dockable to the WV-F250BH, WV-F500H and WV-F700ASH cameras • Dockable via S-VHS docking adaptor to WV-F300 • Laminated amorphous video heads • Hi-Fi audio with 80dB dynamic range • Anti-rolling system • Rotary erase heads • XLR audio input connectors • Optional time code reader/generator • Optional VCR adaptor \$3,350.00

S7450A S-VHS Portable Package

• AG-7450A S-VHS Hi-Fi VCR • AG-S745 VCR adaptor . . . \$4,300.00

DS-2550B S-VHS Dockable Package

• WV-F250BH 3CCD camera head • WV-S290 Docking kit • AG-7450A S-VHS Hi-Fi portable VCR \$9,450.00

DS-5050 S-VHS Dockable Package

• WV-F500H 3CCD camera head • WV-S550 ENG/EFV kit • WV-DKT700S Docking kit • AG-7450A S-VHS Hi-Fi portable VCR \$13,800.00

DS-7050B S-VHS Dockable Package

• WV-F700ASH 3CCD camera head • WV-S750 ENG/EFV kit • WV-DKT700S Docking kit • AG-7450A S-VHS Hi-Fi portable VCR \$18,800.00

Accessories

AG-B640 A/C adaptor/charger, XLR 4-pin DC output, 12VDC, 4A \$515.00
AG-B745 Battery charger for AU-BP220V (AG-7450A) . . . \$660.00
AG-BP212 Battery pack 12V, 2.3AH (AG-S7450A) \$70.00
AG-C70AE S-Video (Y/C) cable (10') (AG-S7450A) \$20.00
AG-C71AE S-Video (Y/C) cable (16.6') (AG-S7450A) \$25.00
AG-F745 Time Code Generator/Reader, compact and lightweight. Can generate and read LTC/VITC signals. Permits setting of VITC recording line as desired. Rec. Run/Free Run selectable. VITC/LTC/Off selectable (AG-7450A) \$1,050.00
AG-S745 VCR adaptor (converts AG-7450A for use as separate portable video recorder). Uses AG-BP212 rechargeable battery pack. Y/C separate circuitry, 5-pin remote control terminal, synchro edit terminal (playback), color framing circuitry. Connectable with 14-pin/10-pin camera \$1,100.00
AU-BP220V 2.2AH battery pack (AG-7450A, DS-7050B/2550B) . \$185.00
CC-390 Hard shell carry case for AG-7450A docked to WV-F300 camera \$490.00
NV-C450 Car battery cord (16.7') (AG-7450A) \$50.00
VW-R17E Wired remote control (16.4') (AG-S7450A) \$72.00
WV-CA 32A/14 32-pin camera to 14-pin VCR (10') with Y/C (AG-S7450A) \$180.00
WV-CC71A Hard shell carry case for AG-7450A docked to WV-F250BH camera \$640.00

AG-6850H VHS Hi-Fi Stereo Recording/Playback Duplicator

• 2-hour only • IQ tape transport mechanism, including 5 direct-drive motors and separate SS brushless motors for both the supply reel and takeup reel • Lower cylinder designed for durability • 5 1/16" H x



AG-7450A

10 5/8" W x 14 9/16" D • 14.96 lbs. • Low power consumption, 25W in record mode • Loophrough remote control • Auto changer connectable • Serial remote recording for up to 500 units • With an optional AG-IA12 serial remote transmitter, an even wider variety of functions are possible (play/record/stop/pause/rewind/fast forward/eject, video AGC on/off, Hi-Fi recording on/off, audio limiter on/off, Dolby NR on/off • 34-pin remote control terminal can be used to connect the optional AG-A600E Remote Control Unit for control of record/play/pause/stop/rewind/fast forward • Video and audio through-out terminal • Auto off/eject status and warning indicator • Large recording indicator • Tape running indicator • VCR mode indicator • Simple internal select system • Test terminals and hour meter • Optional audio level meter available • Hi-Fi channels (CH1/CH2) deliver 90dB dynamic range, while the linear channels feature Dolby NR. Input level controls are separate for Hi-Fi and normal channels (2 each), as are the rear panel audio input connectors. \$1,850.00

AG-6840H VHS Duplication Recorder

• Recording duplicator version of AG-6850H \$1,650.00

AG-CL78 Automatic Cassette Changer

• Automatically loads and unloads cassettes for easy and consecutive dubbing with 2-cassette capability • Up to 5 tapes using the optional cassette holder, AG-CH78 • Hooks easily onto the mounting bracket of the AG-6850H/6840H. \$470.00

Accessories

AG-A600E Remote control unit (10') \$260.00
AG-AM10 Audio meter \$85.00
AG-AM20 Remote audio meter \$140.00
AG-C10 20-pin to 20-pin multi-connection cable (4.5') \$75.00
AG-CH78 Optional cassette holder extender (AG-CL78) \$45.00
AG-DA100 Audio/video distribution amplifier. Video and 2-channel audio signals can be distributed simultaneously to as many as 10 slave VCRs. Each of 2 input selections (A and B) has 5 outputs. Loophrough input terminals and output level adjustment are also featured \$990.00
AG-IA12 Serial remote transmitter board \$175.00
NV-C80 Remote control extension cable (16.4') \$165.00

Panasonic

Broadcast & Television Systems Company

S-VHS/VHS RECORDERS/PLAYERS/ EDITING CONTROLLER/ LASERDISC PLAYERS

AG-5700 S-VHS/VHS Hi-Fi RS-232C Controlled Editing System

- Laminated amorphous video heads • Digital tracking • Cuts only insert/assemble editing with optional AG-A570 Edit Controller • Built-in RS-232C interface for record, playback and editing control • Separate Hi-Fi (CH1/CH2) audio recording level controls • Sensor record keyed by presence of video input • Quick play mechanism (1 second stop to play) • Auto repeat • Mono linear audio • Y/C in/out, 4-pin • Video in/out, BNC • Compact, lightweight and professional design • High-speed VISS (VHS Index Search System) • Mode lock • 2/6-hour record and playback
- AG-5700\$1900.00
AG-A11 Wired remote controller (16.7')25.00



AG-5700



AG-A570

AG-A570 RS-232C Edit Controller for AG-5700

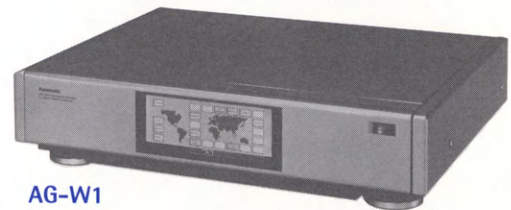
- Jog/shuttle dial • 2 RS-232C 25-pin connectors to VCR • 2 AG-5700 units connected by RS-232C terminals can be used as a player and a recorder • Enables single-event editing using the control track signal; insert/assemble editing (video, audio, audio/video insert modes) • Includes AC adaptor
- AG-A570\$700.00

AG-W1 VHS Universal Recorder/Player

- Record and playback in any TV broadcast system—NTSC, PAL or SECAM • Advanced digital technology, including a field memory chip, specially developed LSI's for control and VTR sections • Playback to any monitor • Fully amorphous, laminated video heads • Multi-voltage selection capability 100-127/220-240VAC (50/60Hz) • Hi-Fi stereo audio system with 90dB dynamic range and 20Hz to 20kHz frequency response • Convenient front panel geographical (standards) display • Functions as a stand-alone converter • SQPB for VHS playback of S-VHS tapes

Standard Accessories

- Infrared remote control (includes 2 "AA" batteries) • AC power cable • Video cable • Audio cable
- AG-W1\$2790.00



AG-W1



AG-LD30

AG-LD30 Multi-Laserdisc Player

- RS-232C computer port for connection to a PC • Supplied with software drivers, making it compatible with majority of applications operating on Apple Macintosh and IBM/IBM-compatible platforms • Digital TBC and digital Y/C comb filter • Headphone output jack • MASH digital audio system • Spin-up time of only 12 sec. • Laserdisc barcode capability • S-Video (4-pin Y/C) output for improved picture quality • RF modulator (CH 3/4) output for connection to a TV • Multi-laserdisc capability (3" and 5" audio capability and CD video capability)

- AG-LD30\$935.00
LY-B155T Barcode remote controller190.00
IFC-LMAC RS-232C interface cable (for Apple Macintosh computer)25.00
IFC-LPS2 RS-232C interface cable (for IBM Model PS2 personal computer)25.00
IFC-LAT RS-232C interface cable (for IBM/IBM-compatible personal computer)25.00



LX-121

LX-121 Multi-Laserdisc Player

- Level 1 interactive capability • Digital time base corrector • Digital Y/C separation circuit • Laserdisc barcode capability • S-Video (4-pin Y/C) output • RF modulator (CH 3/4) output for connection to a TV • Multi-laserdisc capability (3" and 5" audio capability and CD video capability)
- LX-121\$710.00
LY-B155T Barcode remote controller190.00

Panasonic

Broadcast & Television Systems Company

S-VHS/VHS RECORDER/PLAYERS/ EDITING CONTROLLER

AG-1970 S-VHS/VHS Hi-Fi Editing System

- Digital TBC • S-VHS with amorphous video heads • Built-in TBC • 5P edit terminal for AG-A96 multi-event editing controller and other manufacturers' controllers • Jog/shuttle • Insert/assemble editing with rotary erase head • Hi-Fi stereo sound with level control level meter • Picture search with sound • Hi-Fi/normal audio mix • S-Video/BNC/phono, video in • Quick response mechanism • Auto head cleaning • Digital tracking • Built-in MTS and SAP compatible • 155-channel TV-tuner • Tape index/sound search system • Wireless remote

AG-1970\$1850.00

AG-C70AE S-Video cable (10')20.00

AG-C71AE S-Video cable (16.6')25.00

AG-A96 Multi-Event Editing Controller

- Controls 2 AG-1970 VCRs for automatic editing • Direct tape search • 8 programmable memory inset and outset points • Assemble/insert/audio dub • Built-in jog/shuttle search dial • Preview and edit stop functions • LCD multi-function display • High-speed edit function

AG-A96\$520.00

AG-2530 VHS Recorder/Player

- Super drive system • Full time full loading system • Quiet switching • More than 230 lines horizontal resolution • Twin tension regulators • Servo microprocessor • 4 heads • Picture clear circuit • Auto head cleaning • 1-piece aluminum diecast chassis • Direct drive cylinder motor • Super jog and shuttle puts 19-step control over playback speed • Quick view • LCD bar code remote control • 181 channels • 1-touch index search system • Digital auto tracking • Manual tracking control • Picture sharpness control • Variable super fine slow • 2-way cue and review • Repeat playback • SQPB (VHS level playback of S-VHS tapes) • Skip search • 1-month, 8-program, 100-year calendar timer • Tape remaining indicator • V-lock adjustment • Antenna input/output UHF/VHF: 75 ohm unified coaxial antenna terminal

Standard Accessories

- Wireless remote controller • Coaxial cable • AC power cord

AG-2530\$650.00

AG-1740 VHS Hi-Fi Recorder/Player

- VHS Hi-Fi stereo sound system/MTS • Simulcast stereo recording • Separate audio program (SAP) • 4 heads • 181-channel cable compatible tuning (ultraband channels 100-125 added) • SQPB • Digital auto tracking • Auto head cleaning • High speed search • Auto repeat (video end/tape end) • Auto segment repeat • Quick play (less than 2 seconds from stop to play) • Auto digital picture (adjusts resolution vs. tape noise) • 1-month/4-event program timer with calendar • Instant/standby 1-touch recording (OTR) • Book mark search • Time search • Special effects playback: double speed playback, field still, field still advance, double fine slow, skip search, channel search

Standard Accessories

- Wireless remote controller • Coaxial cable • 300 ohm-75 ohm transformer • AC power cord

AG-1740\$495.00

AG-1280 VHS Recorder/Player

- 4 heads • 1-dial program remote operation • Auto digital tracking • Large multi-function display • Rapid tuning allows you to switch back and forth between any 2 channels by pushing 1 button on the remote



AG-1970



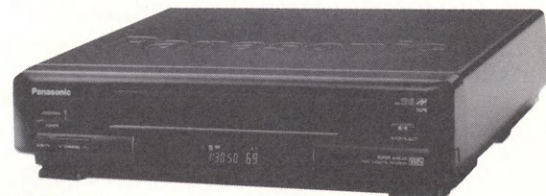
AG-A96



AG-2530



AG-1740



AG-1280

control • SQPB • Center layout design • TV/CATV channel auto set • 181 channels • On-screen display • 1-touch recording • Auto head cleaner • 1-month/8-program calendar/timer • Auto segment repeat • Book mark search • Time search • Auto playback/auto rewind auto eject/memory rewind off/power off eject • High speed search 27X in SLP • Frame advance • Remote input selection • Antenna input/output UHF/VHF: 75 ohm unified coaxial antenna terminal

Standard Accessories

- Wireless remote control • Coaxial cable

AG-1280\$370.00

Panasonic

Broadcast & Television Systems Company

VIDEO PRESENTATION SYSTEMS

AG-513A 13" Diagonal Color Monitor/ VHS Recorder/Player

- Super 4-head system for clear still/slow double-fine playback
- 2/4/6-hour recording and playback • SQPB for VHS playback of S-VHS tapes • Play lock on playback • Special effects on playback
- Auto head cleaning • On-screen menus for programmable playback timer • Time search • Book mark search • Auto tracking
- Quick playback • Rapid search • Field still advance

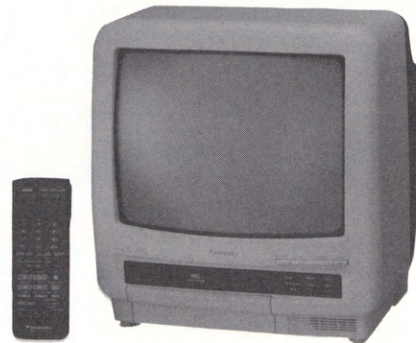
Standard Accessories

- 27-function wireless remote control • 2 AA batteries

AG-513A\$640.00

PC-513A

Soft carrying case100.00



AG-513A

AG-520A 20" Diagonal Color Monitor/ VHS Recorder/Player

- Super 4-head system for clear still/slow double-fine playback
- 2/4/6-hour recording and playback • SQPB for VHS playback of S-VHS tapes • Play lock on playback • Special effects on playback
- Auto head cleaning • On-screen menus for programmable playback timer • Time search • Book mark search • Auto tracking
- Quick playback

Standard Accessories

- 27-function wireless remote control • 2 AA batteries

AG-520A\$695.00



AG-520A

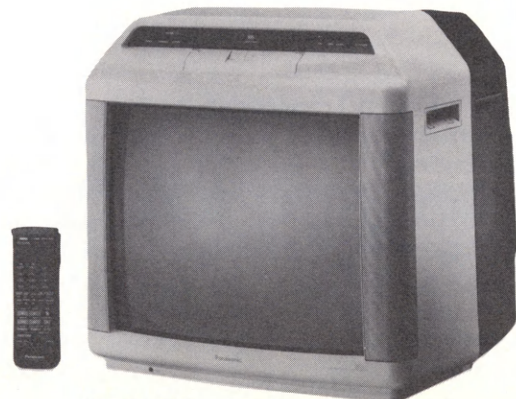
AG-520AH 20" Diagonal Color Monitor/ VHS Hi-Fi Recorder/Player

- 4-head system for fine slow/still picture • Hi-Fi stereo sound
- Dual high-quality dome speakers • Bass/treble/balance control
- Stereo headphone jack • SQPB for VHS playback of S-VHS tapes
- Programmable 4-memory (weekly/daily) playback timer with auto repeat • Play lock on playback • Mode lock switch • Auto head cleaning • Quick start mechanism • On-screen real-time counter • On-screen menus for programmable playback timer
- Book mark search and time search • BNC video in/out terminal
- 3-prong power cord

Standard Accessories

- Wireless remote control • 2 AA batteries

AG-520AH\$895.00



AG-520AH

Panasonic

Broadcast & Television Systems Company

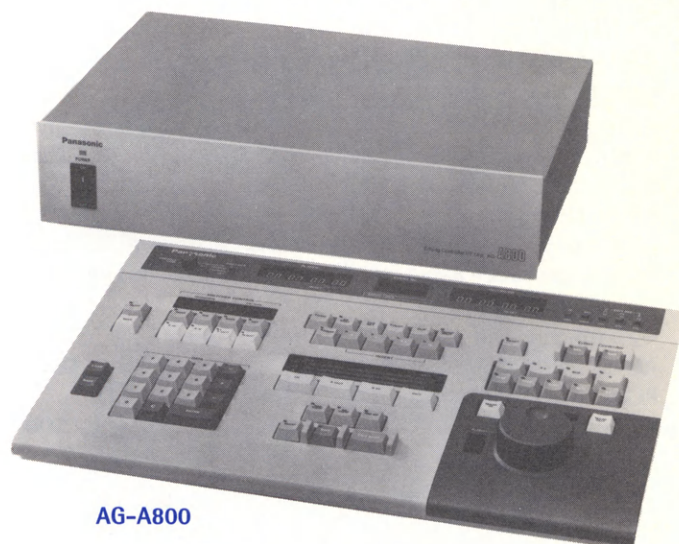
SYSTEM COMPONENTS

AG-A800 Multi-Event Editing Controller

• For AG-7750H/7650H/AU-65H • 128-event memory using control track or SMPTE time code • 2 source VCRs can be alternated for multi-source editing • Use of an A/V mixer (WJ-MX50, optional) enables simultaneous playback from 2 source machines for creation of special effects in multi-event editing • A/B roll editing • Single jog/shuttle search dial • External capstan override • Audio split editing • Aux control for remote control of playback start/stop of external equipment • RS-232C 25-pin D-Sub connector • Separate control panel and interface unit • Digital edit point memory • Remote selection of time code generator modes • Switchable pre-roll time settings: 3/5/7/10/15 seconds • 19" rack-mount adaptor • 15-pin to 15-pin cable

AG-A800\$5000.00

AG-IA82 9-pin interface board (16.6')\$350.00



AG-A800

AG-J700 A.V.R. Multi-Source Selector

• Switches between video (S-Video or composite), audio (XLR) and remote control (RS-422A) sources at the touch of a button • Can connect up to 4 VCRs (or other sources) • Can be used as an input selector with 4 inputs and 1 output, or as an output selector with 1 input and 4 outputs • 5-pin remote terminal for remote control capability of the AG-J700 • Offers improved editing efficiency, easy system expansion and interformat editing with a wide range of professional formats, such as S-VHS and MII

AG-J700\$1480.00



AG-J700

UTP-2 Video Signal Transcoder

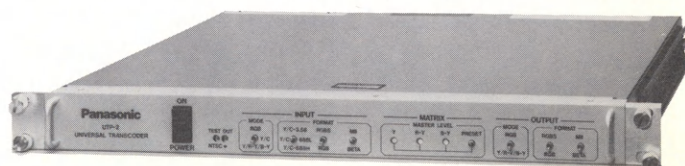
• Transcodes virtually any video signal into virtually any other video signal • Can handle S-VHS, U-Matic, RGB and RGB with separate sync, as well as MII and Betacam • Input signals: Y/688kHz; Y/C 3.58MHz, Y, R-Y; B-Y; linear RGB w/sync • Output signals: Y/688kHz, Y/C 3.58MHz; Y, R-Y, B-Y; linear RGB w/sync, NTSC composite (monitoring) • 5.5MHz (-1dB) bandwidth, 60dB S/N ratio • Front panel level controls with preset switch, front panel NTSC monitoring point • 19" rack-mountable, 1 rack unit high • Rack slides provided

UTP-2\$2300.00

AG-C65 7-pin dub cable (10')\$60.00

AG-C70AE S-Video (Y/C) cable (10')\$20.00

AG-C71AE S-Video (Y/C) cable (16.6')\$25.00



UTP-2

Panasonic

Broadcast & Television Systems Company

SYSTEM COMPONENTS

IFP-3342 Parallel-To-Serial Interface Unit

- Permits control of Panasonic **MII** or S-VHS RS-422 serial pin VCRs controllers from Sony 33-pin parallel edit
- Specifically designed to be used with Panasonic AU-65H acting as a source or record machine
- No modifications to VCR or edit controller
- Microprocessor based
- CMOS logic
- Supports all Sony shuttle speeds
- Insert (V/A1/A2) and assemble edits
- Power supply adaptor supplied
- Full emulation of Sony source/record machines

IFP-3342\$800.00



IFP-3342

IFP-45A Machine Control Interface Unit

- For editing with Sony® RM-440/RM-450 and selected Panasonic 34-pin control professional VCRs
- Controls selected Panasonic 34-pin control VCRs on the source side
- Controls AG-7750H on the edit side
- No modifications required to VCRs or Sony RM-440/RM-450
- Microprocessor based design/CMOS logic
- Power: Maximum of 120mA, 12VDC from VCR, maximum of 650mA, 9VDC external power supply
- 1 1/2" H x 5 3/32" W x 5 1/4" D
- 10' cable/34-pin connector to Panasonic VCRs

IFP-45A\$950.00



IFP-45A

WJ-SW104 Y/C Switcher

- 4-input, 2-output matrix switcher
- Y/C or composite in/out
- Vertical interval switching

WJ-SW104.....\$800.00



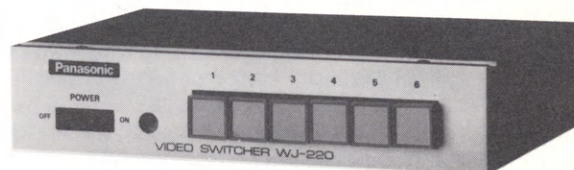
WJ-SW104

WJ-220/220R Active Manual Switchers

- 6 composite video inputs that can be switched to a single video output
- Switching is accomplished during the vertical interval for glitch-free results
- Non-locking pushbuttons light up to show which input has been selected
- Clear cover on each push-button snaps out for insertion of input labels
- Inputs are Hi-Z looping with BNC connectors

WJ-220 Desktop\$360.00

WJ-220R 1 3/4" high EIA rack-mount\$360.00



WJ-220

WJ-225/225R Active Manual Switchers

- Same as WJ-220/220R but with 12 composite video inputs

WJ-225 Desktop\$530.00

WJ-225R 1 3/4" high EIA rack-mount\$530.00



WJ-225

WJ-300C Video Distribution Amplifier

- Selectable 1 input to 6 output or 2 channel with 1 input to 3 output each channel
- BNC connectors
- Use with all video cameras and system equipment

WJ-300C\$330.00

WJ-A01 3 1/2" rack-mount frame\$80.00
 WJ-B01 Blank panel, 3 1/2" H x 2 3/4" W (1/4" span)40.00
 WJ-B02 Blank panel, 3 1/2" H x 5 1/2" W (1/3" span) . . .40.00
 WJ-B03 Blank panel, 3 1/2" H x 8 1/4" W (1/2" span) . . .50.00

Panasonic

Broadcast & Television Systems Company

AUDIO/VIDEO MIXERS/ CHARACTER GENERATORS

WJ-MX30 Digital A/V Mixer

- 2-channel digital field synchronization
- Allows special effects in each of the A/B program buses
- 3-step picture in picture
- Digital effects include: 62 steps strobe, still, mosaic/scramble, negative, paint, mono, AV synchro
- 108 wipe patterns
- Wipe/mix section
- Fade-in/fade-out
- Downstream key with 8-color matte generator
- 3 sources plus matte generator can be switched, any 2 of them routed to the program buses
- A/B program buses can be monitored at the A/B program outputs while the mixed picture is monitored at the preview output
- Color correction
- Audio mixing with audio-follow or breakaway capability
- Master recording output can be selected at the Effect switch in the Program Out section
- External remote control input for RS-232C serial control
- GPI input
- Compatible with WJ-KB15 and WJ-KB50 character generators

WJ-MX30\$3650.00

WV-KB12A Full keyboard titler with scroll230.00



WJ-MX30

WJ-MX50 Professional Digital A/V Mixer

- 2-channel digital frame synchronization permits special effects in each of the A/B program buses
- 4 sources can be switched and any 2 of them routed to the program buses
- A/B program buses can be monitored at the A/B program outputs while the mixed picture is monitored at the preview output
- The master recording output can be selected at the effect switch in the program out section
- Compatible with a wide variety of video editing devices
- GPI input

Other features:

- RS-232C connection: it is possible to program more wipe patterns by combining external wipe pattern control numbers assigned with zoom, scroll, multi, blinds, paring, multi and paring and other operating mode details
- RS-422 connection: numbers 1-099 wipe pattern can be accessed from AG-A800 optional Multi-event Edit Controller. Maximum accessible number via RS-422 is 255. An additional 32 wipe patterns can be operated manually on the WJ-MX50
- Digital special effects: 62 steps strobe, still, frame, mosaic, negative, paint (posterization), mono, multi ($\frac{1}{4}$, $\frac{1}{8}$ or $\frac{1}{16}$ screen), trial and AV synchro (any combination of 6 of the digital visual effects can be programmed to trigger with selected levels of the accompanying audio)
- 287 wipe patterns: combination of 7 basic patterns and other effects can create 287 patterns. Basic wipe patterns: multi-wipe, paring, wipe edge decoration (blinds), compression, slide, H/V aspect, wipe boundary effects, joystick positioner, wipe direction
- Wipe/mix section: non-additive mix (NAM); B-bus luminance key/line chroma key; when luminance key is selected, low-luminance portions of the picture are cut off and mixed with the A-bus video; when chroma key is selected it is possible to address the colors in the B-bus video to be cut off and mixed with the A-bus video; automatic A/B roll (auto take); audio follow
- Fade-in/fade-out: video/title/



WJ-MX50

audio individually or synchronously faded; fade to/from white/black/black color/A-bus/B-bus; automatic fade run (auto fade)

- Downstream key: selectable sources: character generator, A-bus, B-bus, external camera; key level control adjusts pattern sensing level; reverse switch permits interchanging patterns high and low; selectable 8-color matte generator to the DSK; edge effects; connection with optional WJ-KB50 and WJ-KB15 character generators
- Automatic programmable effects: incorporates 8 separate memories; serial switching of events 1-8 using auto take or GPI trigger; effect run transition control is available
- Color correction
- Audio mixing capability

WJ-MX50\$6300.00

WJ-KB50 Character Generator

- Designed to operate with the WJ-MX50 and WJ-MX30 digital A/V mixers
- Character size: 4 levels (horizontal) x 4 levels (vertical), adjustment on an individual line is available
- 5 language modes: English, German, French, Spanish, Italian
- Scrolling: P1-P10, up/down/to right/to left
- Crawl mode (single-line scrolling); upper/lower, from right to left
- Fonts: Gothic/Roman normal/Roman Italic
- Wipe/window wipe functions
- Date/time/stopwatch functions

WJ-KB50\$690.00

WJ-KB15 Character Generator

- Random access key selections
- When the WJ-KB15 is connected with the WJ-MX30 or WJ-MX50 digital A/V mixers, the following functions/operations are possible: 9 pages of character displays and a scroll feature for versatile program productions; 1 page (page A) of character display with date and time display capability; stopwatch with lap time; title positioning feature

WJ-KB15\$360.00

Panasonic

Broadcast & Television Systems Company

SPECIAL EFFECTS GENERATORS

WJ-5600 Color Special Effects Generator

- 2 built-in mixing amplifiers allow 3-channel mixing • 8 channel inputs • 9 patterns • Built-in sync generator • 3 blackburst outputs • Mixing in fade-in, fade-out and dissolve modes • Switchover in normal, normal-reverse and reverse • Wipe waveforms in 3 stages: soft, sharp and color border • Switchover by self-collating non-locking button during the vertical interval • Built-in positioner circuit • 2 color generators for the matte key and border wipe, and for downstream keying and background • Color generators adjusted independently for hue, saturation and luminance • The matte key has a negative/positive selection switch • Downstream keyer has a built-in edge on/off switch • Color matte key and RGB chroma-key are independent • Chroma-key creates key signals in full hue, and controls key delay levels • Downstream key signals capable of color/monochrome switchover • Input signals in both the VBS composite and VB non-composite modes. VBS genlock is also possible • AC or 12VDC • Rack-mountable

The WJ-5600 is a 1-piece special effects generator with a built-in chroma key and sync generator, and intercom capabilities. 2 mixing amplifiers allow 3-channel mixing. In addition, 8 inputs and color background and color bar capabilities are provided. Elaborate special effects are possible with the application of modulation to 9 wipe patterns. The WJ-5600 has 2 independent color generators, 1 for the matte key and wipe borders, and the other for downstream keying and background. This versatile SEG operates on an AC or DC power supply so it can be used for studio and field applications.

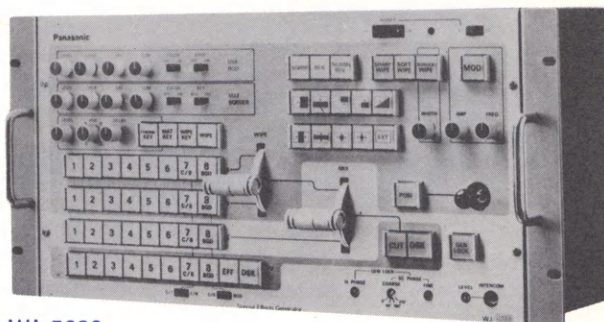
WJ-5600 \$8450.00

WJ-4600C Color Special Effects Generator

- DC operation for EFP use • Vertical interval switching of 6 program inputs • Fades, dissolves and 6 wipe patterns • Super, external key (monochrome); internal key • Built-in EIA RS-170A sync generator (HD, VD, sync, BL, BFP, SC and blackburst outputs) plus genlock capability • Genlock circuitry for non-synchronous video signal mixing • Subcarrier phase and horizontal phase adjustments for genlock • Blackburst (program output only) 3 outputs • Can mix composite and non-composite video inputs • Effect, preview and 2 program outputs • "Cut" pushbutton transfers program and preview buses • 2-step illuminated, non-locking pushbuttons: light dimly when pressed to indicate selected preview inputs; light brightly when pressed to indicate selected program inputs • Illuminated lock-release buttons light up when pressed to show function selected • Supplies intercom power to 6 cameras and level adjustable • Supplies tally light on/off switching to all 8 inputs • BNC connectors • Audio amplifier for intercom with level control • Rack-mountable • AC or 12VDC

The WJ-4600C color special effects generator operates with either a 120VAC or 12V power supply, making it convenient for both studio and field applications. Featuring 6 wipe patterns, fades and dissolves; this unit can also be utilized for vertical interval-switching of 6 program inputs, and to supply amplified audio levels to 6 camera intercoms. The WJ-4600C is a cost-effective, lightweight special effects generator with a built-in genlock sync generator. In addition, it provides super, external key and internal key effects with a high quality picture.

WJ-4600C \$3190.00



WJ-5600



• The built-in RGB chroma key circuit easily generates the chroma key effect by connection with a 3-tube color camera.



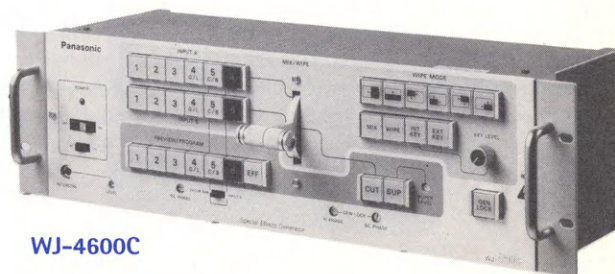
• Matte key and wipe key operations are possible.



• Colored or monochromatic letters can be inserted clearly in final screens with the built-in color downstream key circuit. It is also possible to edge letters for clarity.



• Sharp/soft wipe, border wipe and modulation wipe are possible. In the border wipe mode, the border width can be varied. In the modulation wipe mode, the amplitude and frequency can be varied.



WJ-4600C

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Broadcast & Television Systems Company

S-VHS / VHS DISTRIBUTION COMPONENTS

AG-DA700 Transcoder/S-Video Distribution Amplifier

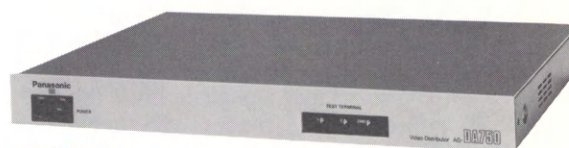
- Switchable input terminals: component (12-pin)/composite (BNC)/S-Video (4-pin) • Simultaneous separated Y/C dubbing for 1 to 10 VCRs • Composite monitor output terminal (BNC) • Test terminal on front panel for easy maintenance • Rack-mountable, adaptor included

The AG-700 provides outstanding video quality by using a 3-line corrective decoder that completely separates the Y and C signals out of a composite input signal. And the encoder processes MII component signals for S-VHS recording/dubbing. The 10 Y/C output channels allow you to dub on up to 10 S-VHS VCRs simultaneously. A composite monitor output terminal (BNC) allows monitoring while dubbing is in progress.

AG-DA700	\$2650.00
AG-C70AE S-Video (Y/C) cable (10')	20.00
AG-C71AE S-Video (Y/C) cable (16')	25.00



AG-DA700



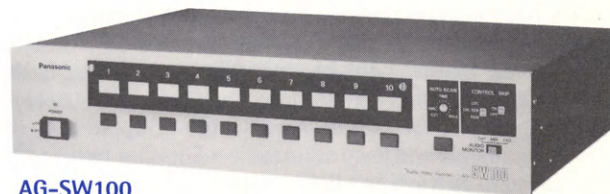
AG-DA750



AG-DA760



AG-DA100



AG-SW100

AG-DA750 S-Video Distribution Amplifier

- S-Video (4-pin) input terminal with loopthrough capability • Simultaneously separated Y/C dubbing on 1 to 10 VCRs • Composite monitor output terminal (BNC) • Test terminal on front panel for easy maintenance • Rack-mountable, adaptor included

The AG-DA750 provides basic S-VHS duplication from an S-VHS source. The S-Video input, with loopthrough capability, distributes the separated Y/C signals to up to 10 S-VHS VCRs.

AG-DA750	\$1160.00
AG-C70AE S-Video (Y/C) cable (10')	20.00
AG-C71AE S-Video (Y/C) cable (16')	25.00

AG-DA760 Audio Distribution Amplifier

- Stereo XLR and RCA input terminals • 10 CH1/CH2 outputs • Switchable input levels • Monitor output (Mix) for maintenance use • Test terminal for easy maintenance • Rack-mountable, adaptor included

The AG-DA760 provides stereo audio distribution from either an RCA or XLR stereo input pair to as many as 10 VCRs.

AG-DA760	\$1160.00
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AG-DA100 Audio/Video Distribution Amplifier

- 2 inputs, A and B, selectable for 2 outputs—A (1-5) and B (2-10) • Because loopthrough type input terminals are used, video/audio distribution can be further expanded by using an additional AV distributor • Video and audio output level can be adjusted while monitoring the level meter • Distribution to as many as 40 slave VCRs is possible by using the multi-connection system (with 4 dubbing controllers, AV distributors and switchers) • Rack-mountable, bracket included • Stereo audio

AG-DA100	\$990.00
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AG-SW100 Audio Follow Video Automatic Switcher

- Video/audio selection of one from as many as 10 input signals for monitoring • Manual and automatic modes can be selected for the output signal • Selection timing for the automatic mode ranges

from about 1 second to 30 seconds • Selection timing can be set according to the external pulse • Stereo audio • Audio monitoring selectable as either audio channel 1, mixed or audio channel 2 • Mode lock function for inhibition of remote control input (normal side) and front panel control (remote side) • Automatic skip function makes selection quicker by skipping terminals with no input signal • Interval switching function makes it possible to switch within the synchronized signal of the video signal if a video input signal is present at input terminal 1 • Rack-mountable, bracket included

AG-SW100	\$1200.00
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Panasonic

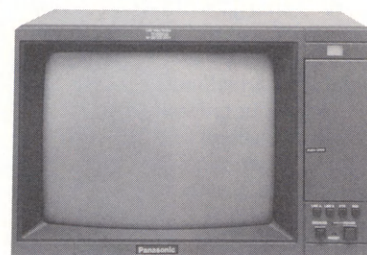
Broadcast & Television Systems Company

COLOR VIDEO MONITORS

BT-M1310Y/BT-D1920Y High-Grade S-Video Color Video Monitors

Common features:

- S-VHS compatible • More than 560 lines of horizontal resolution
- Versatile in/out connectors, including line 1/2/ext sync/RGB, all with automatic termination; also 8-pin VCR in/out • Line 1/2/VCR/RGB selectable • Component (Y, R-Y, B-Y) input available as option • Versatile front panel controls: Preset picture on/off; line 1/2 split; setup switch; RGB cutoff; fast/slow time constant; pulse cross; normal/underscan; blue signal only; color/auto/mono mode; comb/trap filter; degauss
- Separate H/V size controls; H and V centering controls; V-hold control
- Commercial UL listing; 3-prong AC power cord • Rack-mountable
- Front panel tally lamp • Rugged metal cabinet construction

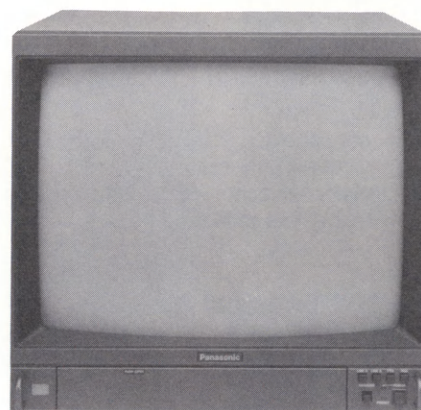


BT-M1310Y

BT-M1310Y 13" Diagonal High-Grade S-Video Color Video Monitor

Includes common features plus:

- 0.39 dot pitch medium-grade CRT \$2000.00



BT-D1920Y

BT-D1920Y 19" Diagonal High-Grade S-Video Color Video Monitor

Includes common features plus:

- 0.55mm dot pitch data-grade CRT • Gray face screen (transparency, 70%) • More than 90fL brightness and 40 ± 5 fL preset contrast \$2265.00

BT-H1350Y 13" Diagonal Color Video Monitor

- SMPTE Type C phosphor • 0.31mm dot pitch • 750 lines horizontal resolution • Line 1, Line 2, RGB input • External sync in/out • Front mounted 1.5W speaker • Selectable color temperature (9300K or 6500K) • Blue-only, underscan, pulse cross • Multi-standard (PAL, SECAM, NTSC 3.58, NTSC 4.43) • MII and S-VHS compatible • Rack-mountable with optional rack-mount \$1430.00

Accessories for BT-M1310Y/D1920Y/H1350Y

BA-131

Rack-mount brackets, 1 pair (BT-H1350Y) \$130.00

BA-M100

Component (Y/R-Y/B-Y) adaptor \$110.00

ET-100YC

S-Video/BNC conversion adaptor, 2 pieces \$75.00

AG-C70AE

S-Video (Y/C) cable (10') \$20.00

AG-C71AE

S-Video (Y/C) cable (16.6') \$25.00



BT-H1350Y

Panasonic

Broadcast & Television Systems Company

COLOR VIDEO MONITORS

BT-S1900N 19" Diagonal Color Video Monitor

• High resolution CompuFocus picture tube with overlapping field lens gun • Line 1/2/VTR selectability • External sync switch for use with non-composite video signal • Normal/underscan switch • Chroma switch for black and white display • Blue only switch defeats red and green signals, makes hue, chrominance adjustment easier • Pulse cross switch (H-delay, V-delay) • Audio monitoring with built-in speaker • Comb filter • Rack-mount kit included (slides required)\$1095.00



BT-S1900N

BT-S1360Y 13" Diagonal Color Video Monitor

• 420 lines horizontal resolution • Auto white balance • Blue signal only, underscan, pulse cross and comb filter switches • AFC select • 1.5W speaker • Rack-mountable with optional bracket, BA-131 • Line 1 or S-Video, Line 2 or VTR inputs.\$1065.00



BT-S1360Y

BT-S1370Y 13" Diagonal Multi-Standard Color Video Monitor

• Multi-standard compatibility (NTSC, PAL, SECAM, M-NTSC) • Auto white balance • Blue signal only • Selectable Line 1 (BNC/S-Video)/Line 2 (BNC/VTR) • 420 lines horizontal resolution • Rack-mountable with optional bracket, BA-131 • Headphone jack\$910.00

BT-S1000N 10" Diagonal AC/DC Color Video Monitor

• Built-in audio • Normal/underscan switch • Built-in pulse cross circuit • Blue only capability • 300 lines of resolution with comb filter • AC/DC operation • Line/VCR selectable • Automatic 75 ohm termination • External sync switch • Rack-mountable or desk-top\$760.00



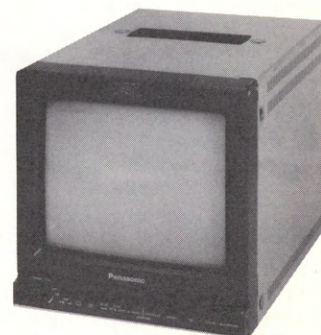
BT-S1000N

BT-S900Y 9" Diagonal AC/DC Portable Color Video Monitor

• AC/DC operation with optional AG-BP212 (2 batteries required) • Blue signal only, underscan, pulse cross and comb filter • Line/S-Video in/out • 1.0W speaker • 300 lines horizontal resolution • Built-in battery charger • Rack-mountable with optional bracket, BA-90A ...\$945.00

BT-S901Y/S901YW 9" Diagonal High-Grade Color Video Monitors

• 300 lines horizontal resolution • S-VHS compatible • Compact metal cabinet • 0.47mm dot pitch • 90° deflection angle • Underscan; pulse cross; blue signal only • Comb filter for color resolution • Rack-mountable; dual rack-mountable with optional heavy-duty rack-mount bracket, BA-90A • Line 1/Line 2 selectable; S-Video/video selectable for Line 1 • External sync input/output for non-composite video signals • Built-in audio amp and speaker, 1.0W audio output • Auto termination • Automatic degaussing\$720.00
BT-S901YW Same as above except with white cabinet735.00



BT-S901Y

Accessories

AG-BP212 Battery pack 12V, 2.3AH (BT-S900Y)\$ 70.00
AG-C70AE S-Video (Y/C) cable (BT-S1360Y/
S1370Y/S900Y/S901Y)20.00
AG-C71AE S-Video (Y/C) cable (BT-S1360Y/
S1370Y/S900Y/S901Y)25.00

BA-90A Rack-mount brackets, 1 pair (BT-S900Y/S901Y) ...\$ 92.00
BA-100 Rack-mount brackets, 1 pair (BT-S1000N)70.00
BA-131 Rack-mount brackets, 1 pair
(BT-S1360Y/S1370Y)130.00
ET-100YC S-Video/BNC conversion adaptor 2 pieces
(BT-S900Y/S901Y/S1360Y/S1370Y)75.00
NV-C450 Car battery cord, 16.7' (BT-S900Y)50.00

Panasonic

Broadcast & Television Systems Company

COLOR VIDEO MONITORS

CT-2583Y 25" Diagonal Color Video Monitor

- 100° tint-face screen • 450 lines horizontal resolution • Either S-Video (4-pin Y/C) or line (BNC) input/output • Audio input/output (RCA) • Automatic 75 ohm termination • Auto on • On-screen display for adjustment of sharpness, brightness, color, tint, channel selection
- Built-in comb filter

CT-2583Y\$640.00

CT-2010Y 20" Diagonal Color Video Monitor

- Square corner screen • 450 lines horizontal resolution • Video/audio (line 1/line 2) • Video input/output: BNC • Automatic 75 ohm termination • S-Video input/output (4-pin) • VCR terminal: 8-pin • Monitor out terminals • Phono input/output • 1.5W speaker, front panel • Comb filter • Direct compatibility with S-VHS • Input source is switch selectable from the front panel • Quick-on CRT uses no current when unit is off • Auto degaussing • Front panel controls for color, tint, brightness, contrast, sharpness, volume and hold • Headphone jack

CT-2010Y.....\$755.00

CT-2083Y 20" Diagonal Color Video Monitor

- Flat square screen • 450 lines horizontal resolution • Video in/out: BNC • Automatic 75 ohm termination • S-Video in/out (4-pin) • Audio input/output (RCA) • 1.5W amplifier • 2.5" speaker, front panel • Auto on • Line 1/2/3/S-Video, switchable • Built-in comb filter • On-screen display for adjustment of sharpness, brightness, picture, color and tint

CT-2083Y\$455.00

CT-1331Y 13" Diagonal Color Video Monitor

- Tint face screen • 420 lines horizontal resolution • Video/audio (line 1/line 2) • Video input/output BNC • Automatic 75 ohm termination • S-Video in/out: 4-pin; VCR terminal: 8-pin; monitor out terminals • Phono input/output • 1.5W amplifier • Speaker, front panel • Comb filter • Direct compatibility with S-VHS • Input source is switch selectable from the front panel • Front panel controls also include color, tint, brightness, contrast, sharpness, volume and vertical hold, headphone jack

CT-1331Y.....\$605.00

CT-1383Y/1383YW 13" Diagonal Color Video Monitors

- 90° deflection screen • 420 lines horizontal resolution • Video in/out: BNC • Automatic 75 ohm termination • S-Video in/out (4-pin) • Audio input/output (RCA) • 1.5W amplifier • 2.5" speaker, front panel • Auto on • Line 1/2/3/S-Video, switchable • Built-in comb filter • Headphone jack • On-screen display for adjustment of sharpness, brightness, picture, color and tint

CT-1383Y.....\$360.00

CT-1383YW Same as above except with white cabinet...\$390.00

COLOR VIDEO MONITOR/RECEIVERS

CT-1384VY 13" Diagonal

Color Video Monitor/Receiver

- 90° deflection screen • 420 lines horizontal resolution • Easicon™ on-screen menu • Selectable line 1/2/3/S-Video/RF • Wireless infrared remote control • 181-channel cable compatible tuner • Programmable channel scan • On-screen display for adjustment of sharpness, brightness, color, tint and channel selection • Auto power on/off • Built-in closed caption decoder • 1.5W audio amp • 2.5" speaker • 1/8" mini-plug headphone jack

CT-1384VY.....\$410.00

COLOR VIDEO MONITORS/ MONITOR/RECEIVERS



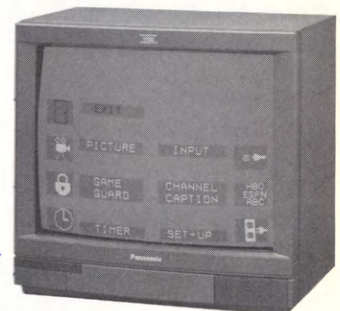
CT-2583Y



CT-2010Y



CT-1331Y



CT-2084VY

CT-2084VY 20" Diagonal Color Video Monitor/Receiver

- 90° deflection flat square screen • 450 lines horizontal resolution
- Easicon on-screen menu • Selectable 1/2/3/S-Video/RF • 20-function wireless infrared remote control • 181-channel cable compatible tuner
- Programmable channel scan • Auto power on/off • Built-in closed caption decoder • 1.5W audio amp • 2.5" speaker

CT-2084VY\$515.00

CT-2584VY 25" Diagonal Color Video Monitor/Receiver

- 100° deflection tint-face screen • 450 lines horizontal resolution
- Easicon on-screen menu • Selectable S-Video or Line/RF • Wireless infrared remote control • On-screen display for adjustment of sharpness, brightness, color, tint and channel selection • 181-channel cable compatible tuner • Programmable channel scan • Auto power on/off
- Built-in closed caption decoder • 1.5W audio amp • Two 2.5" speakers

CT-2584VY\$740.00

Accessories

ET-100YC S-Video/BNC conversion adaptor, 2 pieces

(all models)\$75.00

AG-C70AE S-Video (Y/C) cable, 10' (all models).....\$20.00

AG-C71AE S-Video (Y/C) cable, 16' (all models).....\$25.00

Panasonic

Broadcast & Television Systems Company

COLOR/B/W MONITORS

DT-2700MS 27" Diagonal Video/Data Multi-Scan Monitor

• Invar mask CRT • Resolution: video 600 TVL, RGB 640x480 dots • Variable scanning rate: horizontal 15.5kHz to 38kHz, vertical 50Hz to 100Hz • Selectable inputs: RGB1/RGB2/RGB3/video or S-Video • Remote input for wired remote capability • Advanced digital scan compatible (with optional ET-100DS) • Built-in stereo audio amp/speakers . . . \$3450.00

PC-2700 Shipping and Storage Case for DT-2700MS

• Steel construction, recessed, spring loaded twist latches • Steel machine driven rivets • Heavy-duty casters • Conforms to Air Transport Association specifications • Interior padding, custom designed to provide 27" maximum shock protection . . . \$745.00

FT-2700 27" Diagonal Multi-System Color Video Monitor

• High contrast flat CRT • 700+ lines horizontal resolution • Auto white balance • Wired/wireless remote control • Blue only function • ABL in/out • Preset control for color, brightness, contrast, tint and sharpness • 4 standard color system (PAL, SECAM, NTSC, NTSC 4.43) . . . \$2260.00

MT-1340G 13" Diagonal Color Medical Video/Data Monitor

• RGB linear and composite monitor for medical applications • Resolution more than 400 lines (RGB) • 0.52mm dot pitch data grade tube for crisp detail • U.L.-544 rating for critical environments • 1.5V p-p linear RGB input for true color • Built-in speaker • Audio amp . . . \$900.00

CT-1030M 10" Diagonal Color Video Monitor With Audio

• Solid-state IC chassis • Automatic termination • Comb filter • Metal cabinet • Front panel push controls • BNC video/8-pin VCR connectors (selectable) • RCA audio connector • Rack-mountable • 300 lines resolution . . . \$505.00

ST-1000M 10" Diagonal Color Video Monitor

• 100% solid-state IC chassis • 300 lines resolution • BNC video in/out with automatic termination • Comb filter • Metal cabinet and magnetic shield ring (for the deflection yoke) to reduce interference • B/W color mode switch • Front panel controls • Optional rack angle brackets for rack-mounting • Use in security, medical, scientific/industrial process observation, fiberoptic and studio monitoring, closed circuit TV applications • No audio . . . \$730.00

WV-5200B 5" Diagonal B/W Desktop Video Monitor

• 600 lines • DC restoration switchable . . . \$ 445.00

WV-5203B Triple 5" monitors. Designed for 19" rack-mount . . . 1340.00

Accessories

AG-C70A S-Video (Y/C) cable (DT-2700MS) (10') . . . \$ 20.00
AG-C70AE S-Video (Y/C) cable (DT-2700MS) (16.6') . . . 25.00
BA-100 Rack-mount brackets, 1 pair
(CT-1030M/ST-1000M) . . . 70.00
ET-100DS Advanced digital scan converter
(DT-2700MS) . . . 4800.00



DT-2700MS



MT-1340G



CT-1030M



ST-1000M



WV-5200B

WV-5380A 9" Diagonal B/W Deluxe Desktop Video Monitor

• Pulse cross • Underscan • DC restoration • Horizontal AFC • Audio and external sync • 8-pin connector • 120VAC/VDC 12V power 'Quick On' jack. . . \$ 520.00

WV-5382A Double rack-mount version of WV-5380A
(19" rack-mount) . . . 1025.00

WV-Q27V 19" rack-mount interface for Tektronix 528
waveform monitor (WV-5380A) . . . 100.00

Panasonic

Broadcast & Television Systems Company

PT-101Y Color Video/Data Projector

- 650 lumens • 1000 lines RGB resolution • NTSC video resolution 650 lines
- S-Video input • 4-system capability: PAL/SECAM/NTSC 3.58/M-NTSC 4.43
- Line/video/RGB (TTL/linear) selectable • 2000 character display • Blue mode selector • Built-in cross-hatch generator • Sync inversion switch broadens computer signal compatibility • 4-corner independent dynamic convergence controls for fast calibration • Pulse switching power supply for reduced weight and size • Ideal for teleconferencing, business, entertainment and education • Can easily be moved from 1 location to another using the PC-101 carrying case or the ET-CR101 custom adjustable cart • Both upright and ceiling mount are possible, and you can use front or rear projection • Lightweight, compact chassis and special mounting plate simplify ceiling installation

Standard Accessories

- Lens spacers for 85"-120" ceiling/cart mounting kit • AC cord

PT-101Y/120 Preset for 120" diagonal; ceiling mount \$5,660.00

PT-101Y/120F Preset for 120" diagonal; floor mount 5,660.00

PT-200 Advanced Digital Video/Data Projector

- Dual focus 6-element color corrected lens • Direct lens/CRT optical coupling system for high contrast • Advanced digital scan compatible • Auto scanning from 15kHz to 37kHz horizontally; 50 to 100Hz vertically • S-VHS compatible • Bright 550 lumens light output • High resolution 1100 lines (RGB), 650 lines (video) • Multiple inputs Line/S-Video/RGB (analog)/RGB2 (TTL) selectable • Multi-standard capability (NTSC, PAL, SECAM, M-NTSC) • Built-in audio AMP/speaker; test pattern generator

Standard Accessories

- AC cord • Mounting kit

PT-200/72F Preset for 72" diagonal floor mount.
Adjustable from 70"-79" only \$8,030.00

PT-200/120F Preset for 120" floor mount.
Adjustable from 80"-120" only 8,030.00

PT-B1010U/PT-B2010U Color Video/Data Projector

- 3-source input capability; S-Video, line and RGB • Unit automatically selects PAL, SECAM, NTSC 3.58 or NTSC 4.43 • Manual system selector buttons on unit and wireless remote • Elevated resolution with IDTV (31.5kHz) and HDTV (33.75kHz) compatibility • With optional ET-100DS advanced digital scan converter, a standard NTSC video signal can be converted to the IDTV format for crisper pictures • 700 lumens • 1100 lines RGB, 800 lines video horizontal resolution • 7" high-brightness electromagnetic focusing projection tubes • Dual focus 6-element lens allows separate adjustment for the full screen and the screen edges • Direct optical coupling system for cool operation and elimination of reflections • On-screen display • Digital convergence adjustment function • Fine adjustments with independent memory • Independently selectable color temperature for each signal input source • Notch on/off • RGB horizontal position adjustment • Built-in 1.5W audio amplifier with speaker • Fail-safe operation on/off switch • Full-function wireless remote control offers large buttons for often used controls, digital convergence and color temperature selector

Standard Accessories

- Wireless remote control: 3VDC power supply • 3 AA batteries • Remote sensor cable (16.4') • S-Video/BNC conversion adaptors • Holding plate kit • Power cord

PT-B1010U Preset for ceiling mount 80"-120"
projected diagonal screen size \$ 9,350.00

PT-B1010UF Preset for floor mount 80"-120"
projected diagonal screen size 9,350.00

PT-B2010U Preset for ceiling mount 150"-300"
projected diagonal screen size 10,300.00

PT-B2010UF Preset for floor mount 150"-300"
projected diagonal screen size 10,300.00

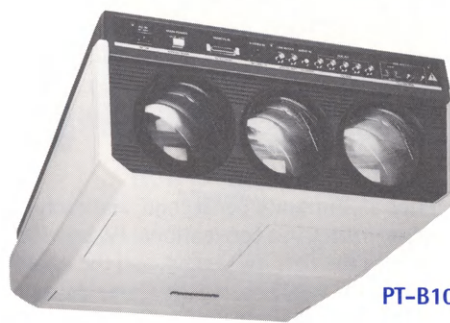
VIDEO PROJECTION SYSTEMS



PT-101Y



PT-200



PT-B1010U/B2010U

Accessories for Video/Data Projectors

ET-10G PC/RGB interface with rack-mount \$ 530.00

ET-11C15 RCU cable (50') (use with ET-15R) 210.00

ET-11C30 RCU cable (98') (use with ET-15R) 300.00

ET-11C50 RCU cable (164') (use with ET-15R) 415.00

ET-15R Remote control with rack-mount for PT-200/72F/120F (use with ET-11C15/11C30/11C50) 325.00

ET-11RY Remote control with rack-mount for all PT-101Y models (use with ET-11C15/11C30/11C50) 330.00

ET-100DS Advanced digital scan converter (all models) 4,800.00

ET-100YC S-Video/BNC conversion adaptor (2 pcs.) 75.00

ET-CR101A Heavy-duty adjustable cart with wheels (PT-200/101Y) 295.00

PC-101 Custom carrying case with wheels (PT-101Y) 700.00

PC-105 Custom carrying case with wheels (PT-200/B1010U/B1010UF/B2010U/B2010UF) 700.00

Panasonic

Broadcast & Television Systems Company

ET-100DS Advanced Digital Scan Converter

- Used for monitors or projectors
- Converts NTSC input signals, including S-Video signals, into analog RGB output, resulting in video images of extraordinary high quality, featuring a flicker-free picture with no dot crawl or cross-color interference
- Doubles the horizontal scanning frequency from 15.75kHz to 31.5kHz
- Resolution 560 lines horizontal, 450 lines vertical
- 3 video/audio terminals, 1 S-Video input terminal
- RGB, HD, VD, HD/VD, S-Video and audio output terminals
- 3-dimensional motion adaptive circuitry
- Digital noise reduction
- Terminal for remote control input selector
- Color, tint and sharpness controls

High-quality video sources and large-screen TVs and displays have created a need for radically elevated picture quality. In the past, improving the video image generally meant increasing the horizontal resolution. But as screens get larger, problems such as lack of sharpness and the flicker caused by interlace scanning become more noticeable. Also, dot crawl and cross-color interference have put limits on maximum achievable picture quality. The ET-100DS is designed to overcome these obstacles to top quality performance. The ET-100DS uses advanced digital technology to achieve non-interlace double scan conversion, as well as 3-dimensional Y/C separation. The result is a video image of extraordinarily high quality, featuring a flicker-free picture with no dot crawl or cross-color interference.

The ET-100DS converts standard composite NTSC input signals, including S-Video signals, into analog RGB output with a horizontal frequency of 31.5kHz. When connected to an Advanced Digital Scan-compatible video projector or monitor, the ET-100DS delivers a picture that is stunningly bright, sharp and clear. And the larger the screen, the more dramatic the performance improvements appear.

Non-Interlace Double Scan Conversion

The NTSC system operates at 30 frames per second, and each frame contains 525 horizontal scan lines. In a conventional TV, the electron gun scans all the odd lines in the first $\frac{1}{60}$ second, and the even lines in the next $\frac{1}{60}$ second. The ET-100DS stores the frame data of the connected video source in its memory and doubles the scanning rate to produce a full 525 lines of video every $\frac{1}{60}$ second. This eliminates horizontal line flicker while raising vertical resolution.

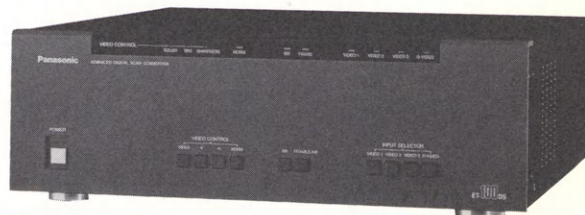
Complete Line-Locking 3-Dimensional Digital Filter

The ET-100DS features an advanced intelligent frame comparison system that selectively applies either a frame- or field-type comb filter, depending upon whether there is motion or not. This maximizes Y/C separation to dramatically reduce cross-color and dot crawl interference.

Digital Noise Reduction

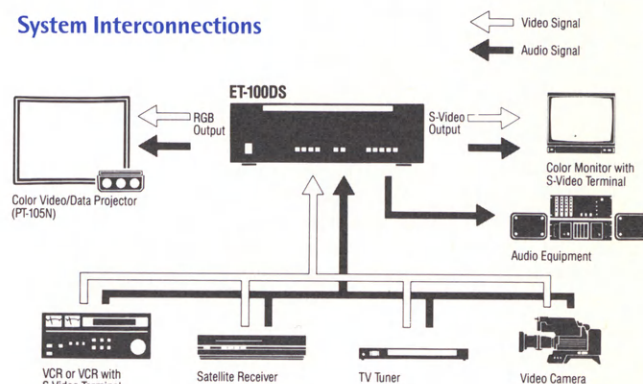
The ET-100DS improves the video S/N ratio of connected sources by using digital noise reduction circuitry that operates when necessary. It switches on and off, operating selectively on the picture data stored in its memory.

DIGITAL SCAN CONVERTER



ET-100DS

System Interconnections



AV Connection Versatility

The ET-100DS features 3 sets of audio/video input jacks and 1 S-Video input, allowing simultaneous connection of a wide array of AV equipment. For additional versatility, there are audio monitor out jacks, as well as S-Video jacks that output the Y and C signals separately, even from the composite video signal.

Specifications

Power Source:	120VAC, 60Hz
Power Consumption:	42W (max.)
Input Signals	
Video/Audio 1/2/3:	Video: 1V p-p/75 ohms Audio: 0.5VRMS (RCA phono pin)
S-Video/Audio:	Y signal: 1V p-p/75 ohms C signal: 0.18V p-p/75 ohms (Mini DIN 4-pin) Audio: 0.5VRMS (RCA phono pin)
Output Signals	
RGB/Audio:	RGB: 0.7V p-p/75 ohms (BNC) Audio: 0.5VRMS (RCA phono pin)
S-Video/Audio:	Y signal: 1V p-p/75 ohms C signal: 0.18V p-p/75 ohms (Mini DIN 4-pin) Audio: 0.5VRMS (RCA phono pin)
HD, VD Outputs:	4V p-p, negative (BNC)
Out:	1V p-p, negative (BNC)
Output Horizontal Frequency:	31.5kHz, non-interlace (at RGB output)
Dimensions:	5 $\frac{1}{16}$ " H x 16 $\frac{5}{16}$ " W x 16 $\frac{9}{16}$ " D
Weight:	20 $\frac{5}{16}$ lbs.
Remote Connector:	9-pin D-sub connector
ET-100DS	\$4800.00

Panasonic

Broadcast & Television Systems Company

STILL IMAGE SYSTEM

AG-ES100 Video Floppy Player

- 50 pictures per disk (field mode) • High-band/normal playback • Jog dial (up to 15 images/sec.) • Auto advance for automatic sequential playback of all pictures on the disk, adjustable from 1/20 to 60 seconds • Field/frame address (OSD) • 1-shot/full erase • Auto power off • Auto tracking • Wireless remote controller • Skew correction • 3600 rpm • External sync input • Forced field playback • Selectable date, time or ID# playback (OSD) • 47mm Ø still video floppy disk • Modulation systems—Y signal: frequency modulation; C signal: color difference line, sequential frequency, modulation recording • Output: video BNC, S-Video, dub 5-pin • Horizontal resolution HB: > 500 lines; NOR: > 350 lines • S/N ratio: Y: > 46dB; C: > 45dB • Y/C cable

AG-ES100\$1450.00



AG-ES100

AG-810 Still Image Recorder/Player

- Store up to 50 color pictures on a single 2" floppy disk and use any TV set or monitor to present high resolution stills • Switchable frame/field recording • Automatic frame/field playback • Automatic recording verification • Automatic playback/automatic advance • Automatic repeat playback • Optional wireless remote control (AG-A80) allows you to set the pause time from 1-8 seconds • Forward/reverse • On-screen display • Front loading • 1 Y/C, 2 composite video outputs • Y/C, composite video inputs • Recording bandwidth of 6-7.5MHz • Frame or field recording • 350 lines of horizontal resolution • 6-pin serial control port for the KS-10, IFP-232SVP and FPR-250 S-IV control systems

AG-810\$1650.00



AG-810

AG-EP60 Color Video Printer

- Multiple printing in 4, 9, 16 or 25 squares in 3 modes: (1) up to 25 of the same image, (2) up to 25 different images, (3) 3-second strobe for automatic capture of up to 25 different images • 80 sec./sheet • Provides outstanding color quality, using 256 gradations of yellow, magenta and cyan to print nearly 16,780,000 different tones • Split Print for cropped, wallet size, "portrait formatted" pictures • Zoom Print for enlargements of any quarter of the video image • Parallel control port (compatible with IFP-232SVP or FPR-250 control systems) • Wireless remote also controls AG-1970/1740/2530 VCRs • RGB, Y/C, composite input memory • Y/C, composite outputs • Memory or E-to-E printing (for the highest possible quality) • Character generator port

AG-EP60\$1500.00



AG-EP60

AG-EP60W Color Video Printer/ CT-1383YW 13" Diagonal Color Monitor

- Designed with white cabinets for a variety of medical and computer based video applications • AG-EP60W offers same features as AG-EP60, only white • CT-1383YW features: • 90° deflection screen • Video in/out: BNC • Automatic 75 ohm termination • S-Video in/out (4-pin) • RCA phono input/output • 1.5W 2.5" speaker, front panel • Auto on • Line 1/2/3/S-Video, switchable • 420 lines horizontal resolution • Comb filter • Headphone jack • On-screen display for adjustment of sharpness, brightness, picture, color and tint

AG-EP60W Color video printer\$1650.00

CT-1383YW 13" diagonal color monitor.....390.00



AG-EP60W/CT-1383YW

Panasonic

Broadcast & Television Systems Company

STILL IMAGE SYSTEM

AG-EP80 Color Video Printer

- Ideal for medical, dental, educational and public facility operations • 256 gradations of yellow, magenta and cyan to print nearly 16,700,000 different tones
- 14-point fuzzy field interpolation • 70-step gradation compensation • Twin DSP processor reduces color noise with CNR circuitry • High-precision thermal head helps minimize irregular image density • Wide range of print modes: Multi-picture print divides into 4, 9, 16 or 25 squares with a different image in each square; Divided print also divides prints of the same image with 4, 9, 16 or 25 squares; Strobe print with 4, 9, 16 or 25 squares with switching between set strobe speed and variable strobe speed in the swing mode; Card-sized print divides print down the center for 2 card-sized prints of different images • Size specification prints can be selected between 40 x 30, 30 x 24 and 50 x 50mm; Dual print; Negative/positive reverse print; Zoom print 2X enlargement vertically and horizontally; Title input, with a choice of 8 colors • 60 sec. print time • Wireless remote control for all operations • Remote also controls AG-1970/1740/2530
- System expandability through plentiful video input and output terminals, for composite and S-video, and one input for RGB. \$2100.00

Medical/Dental Print System

AG-EP80 Color Video Printer/CT-1383YW 13" Diagonal Color Video Monitor/FPR-EP80 Foot Pedal

- Designed with white exteriors • Can be attached to any intraoral, endoscopic, microscopic or other video camera to produce crisp, clear, high resolution prints in 60 seconds • Hands-free control • Picture correction after capturing for minimum paper use • Electronic negative mode for convenient backup or pictorial archiving • Upward compatible is possible to many computer imaging systems
- AG-EP80 (see above for features) • CT-1383YW monitor features: • Selectable line 1/2/3/S-Video input/output • 420 lines horizontal resolution • On-screen display for adjustment of sharpness, brightness, picture, color, tint • Headphone jack (1/8" mini plug) • Auto power on/off • FPR-EP80 foot pedal (see detailed description on this page)

AG-EP80		\$2100.00
FPR-EP80	Foot pedal	\$225.00
CT-1383YW	13" diagonal color video monitor	\$390.00

Mini Imaging System

AG-810W Still Image Recorder/Player/FPR-810W Foot Pedal/BT-S901YW 9" Diagonal Color Video Monitor

- Designed with white exteriors • Can be used with any intraoral, endoscopic, microscopic or other video camera to record, view and store high resolution still pictures • Can also be used as a source for video printers or for many computer based imaging systems • Small footprint for convenient mounting or easy transport • Hands-free control • AG-810W offers same basic features as AG-810 except the control port is modified for an advanced foot pedal/I.R. operation
- FPR-810W foot pedal designed exclusively for the AG-810W to be used in conjunction with the AG-A80 infrared remote • BT-S901YW monitor features: • S-VHS compatible • Compact metal cabinet • 0.47mm dot pitch • 90° deflection angle • Underscan; pulse cross; blue signal only • Comb filter for high resolution • Rack-mountable; dual rack-mountable with optional heavy-duty rack-mount bracket, BA-90A • Line 1/2 selectable; S-Video/video selectable for line 1 • External sync input/output for non-composite video signals • Built-in audio amp and speaker, 1W audio output • Auto termination • Automatic de-gaussing • Headphone jack

AG-810W	Still image recorder/player.	\$1700.00
FPR-810W	Foot pedal controller	\$210.00
BT-S901YW	9" diagonal color video monitor	\$735.00

System Components

AG-DA750 Video Distribution Amplifier • For all models • S-Video (4-pin) input terminal with loopthrough capability • Simultaneously separated Y/C dubbing on 1 to 10 VCRs • Composite monitor output terminal (BNC) • Test terminal on front panel • 19" rack-mountable, adaptor included. \$1160.00

KS-10 Kodak 4-Pin Cable Adaptor • For AG-ES100/810/810W, forward/reverse • 50 memory locations • Power supply. \$175.00



IFP-232SVP RS-232C Adaptor • For AG-ES100/810/810W/EP60/EP60W • Allows full computer control from 1 serial port • Capability of a 32-interface daisy chain • Dip switches for user security • Applications and test software included • Baud rates from 1200-19,200 \$375.00

100SS Sync Enhancer • For AG-ES200/810/810W • For computer image capture boards • Composite in/out • Y/C in/out \$200.00

FPR-250 Foot Pedal • For AG-ES100/810/EP60/EP60W/MVP-100 • Recorder cycle: record, advance or record advance, erase • Printer cycle: memory, monitor on, print, monitor off. \$325.00

FPR-EP80 Foot Pedal • For AG-EP80 • Set multi-1, 4, 9, 16, 25 card • Put image in memory (short click) • Erase image (long click) • In multi-1 mode, toggle between full picture and zoom • While printing, toggle between live and display • Connects to AG-810, for electronic negative mode \$225.00

FPR-810W Foot Pedal • For AG-810W • First click: record then display • Second click select: advance, advance/erase (to reuse a disk), then ready for first click • Operates with AG-A80 without touching rear switch \$210.00

MVP-100 Printer Sequential Switcher • For AG-ES100/810/EP60/EP60W • Attaches to FPR-250 to control up to 4 printers. \$190.00

Accessories

AG-A80	Wireless remote control for random access and auto advance control (AG-ES100/810/810W).	\$ 75.00
AG-C70AE	S-Video (Y/C) cable, 10' (100SS/AG-ES100/810/810W/DA750/EP60/EP60W/EP80)	20.00
AG-C71AE	S-Video (Y/C) cable, 16' (100SS/AG-ES100/810/810W/DA750/EP60/EP60W/EP80)	25.00
BA-90A	Heavy-duty rack-mount brackets, 1 pair (BT-S901YW)	92.00
NV-VF50	Floppy disk (AG-ES100/810/810W).	120.00
GP-KS152	1/2" CCD color digital microcamera (AG-EP80)	3800.00
VW-CG5P	Character generator (AG-EP60/EP60W/EP80)	330.00
VW-VS50A	Color print paper, 50 sheets (AG-EP60/EP60W/EP80)	55.00
VW-VS100A	Color print paper, 100 sheets (AG-EP60/EP60W/EP80)	95.00

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Broadcast & Television Systems Company

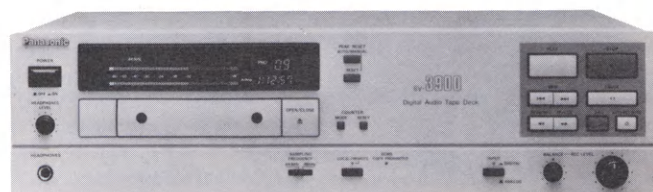
DAT RECORDERS/PLAYERS

SV-3900 Digital Audio Tape Digital Audio Tape Deck

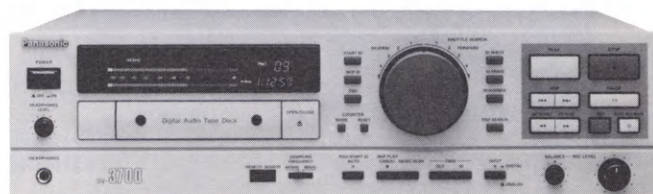
- 1-bit high-precision analog-to-digital converters • Advanced 4-DAC system with 18-bit resolution • For enhanced remote control, bi-directional serial interface supports industry-standard P2 and ES-bus protocol—ES-bus enables sophisticated control between multiple audio/video machines on a serial local area network—P2-compatible interfaces use similar commands • Optional SH-MK390 remote controller provides ES-bus serial control of all transport modes and functions. Includes shuttle wheel, backlit LCD window, dedicated keys and numeric keypad for system assignments, cueing and program play • Software developer's tool kit available • Headphone output • Rack-mount

The SV-3900 Pro-DAT recorder provides outstanding record/replay quality and comprehensive serial remote control via industry standard serial protocols. Unlike other DAT machines, the SV-3900 is designed specifically for remote control applications, using either the SH-MK390 remote controller (optional) or external computer interfaces. It offers high-quality analog and digital conversion features such as instrumentation quality analog input/output stages, 1-bit high-precision analog-to-digital converters with 64-times oversampling and an advanced 4-DAC system with 18-bit resolution. For network management of single or up to 32 individually addressable SV-3900 Pro-DAT machines, the SH-MK390 (optional) provides ES-bus serial control of all transport modes and functions. For enhanced remote control in recording, broadcast and post-production facilities, the SV-3900 supports industry-standard P2 and ES-bus protocols. A pair of 9-pin D-sub connectors provide external control of every transport and system function.

SV-3900		\$2500.00
SH-MK390	Wired remote control.	430.00
SDT-390M	Software development tool kit for Macintosh computer.	650.00
SDT-390B	Software development tool kit for IBM compatible computer.	650.00



SV-3900



SV-3700



SV-3200

SV-3700 PRO-DAT Recorder

- Front-panel shuttle wheel • 0.5-15X speed range • IR remote control • 4 stage, 1-bit Delta-Sigma A-to-D converters • Horizontal cassette tray • Program, absolute and time-remaining displays • Pushbutton selection of 44 1/4kHz sampling rates via either analog or digital inputs • Pushbutton fade-in and fade-out functions • Balanced inputs and outputs via XL-type connector with choice of -10dBu or +4dBm output levels • Up to 400X fast forward/rewind and search speeds to provide high-speed access to any point on a 2-hour DAT tape within 27 seconds

The 1-bit analog-to-digital converters of the SV-3700 bring dramatically improved performance and cleaner, clearer audio at low as well as high levels. The conversion of digital data to audio information is accomplished by high-resolution DAC systems. 4 of these high-precision DACs, 2 per channel, ensure optimum replay quality by effectively removing zero cross distortion and enhancing linearity. Digital inputs and outputs provide direct interfacing with CD players, digital audio workstations and other components. Features include a shuttle wheel with 2 variable speed ranges, an infrared wireless remote controller, 4-digit error rate display and selectable sampling rates in the record mode from the analog inputs at 44.1kHz and 48kHz. Recording from the digital inputs, the SV-3700 automatically clocks to incoming frequencies of 32kHz, 44.1kHz or 48kHz.

SV-3700		\$1840.00
SSE-44	Wired remote control.	50.00

SV-3200 Digital Audio Tape Digital Audio Tape Deck

- Selectable sampling rate (44.1kHz/48kHz) when recording through analog inputs • When recording through the digital inputs, unit automatically clocks to incoming frequencies of 32kHz, 44.1kHz or 48kHz • 1-bit, 64 times A/D and D/A converters with anti-aliasing filters • High-resolution, 1-chip, LSI 4-DAC system • Shuttle wheel with dual speed range: 3-15X normal speed in play mode and 1/2-3X normal speed in pause mode • 400X normal speed • Diecast chassis • IEC 958 industry standard digital I/O • Multi-information display • Infrared wireless remote control • Digital fade-in/fade-out • Software controlled transport servo • Amorphous/ferrite composite heads • Coaxial/optical digital input selector • SCMS (Serial Copy Management System) equipped

SV-3200		\$1045.00
SH-RM370	Rack-mount adaptor.	600.00

Digital Audio Tapes

RT-R120P	120 minutes.	\$11.00
RT-R90P	90 minutes.	10.00
RT-R60P	60 minutes.	9.00
RT-R46P	46 minutes.	8.00
RT-RCLP	Cleaning tape for digital audio tape recorder.	10.00

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Broadcast & Television Systems Company

SPEAKERS/MICROPHONES

WS-T212/T215 Trapezoidal Speaker Systems

Common Features

- Wide-range compact systems with ruggedness for sound reinforcement applications • Sound quality comparable to studio monitor loudspeakers • High frequency waveguides • Wide frequency constant directivity performance • Trapezoidal footprint allows transducer-to-transducer spacing within 30° between adjacent systems' radiation axes • Completely self-contained; no external control electronics • Compact portable enclosure • 2-way bass reflex • 8 ohms nominal impedance

WS-T212 Includes common features plus: • 12" low frequency cone driver • 150WRMS, 300W continuous program input • 97dB sound pressure level • Frequency response 50Hz to 25kHz • 1600Hz crossover frequency \$720.00

WS-T215 Includes common features plus: • 15" low frequency cone driver • 200WRMS, 400W continuous program input • 98dB sound pressure level • Frequency response 45Hz to 25kHz • 1500Hz crossover frequency \$770.00

WS-A10 Compact, Wide-Range Speaker System

- 80W continuous power handling • Sensitivity rated at 88dB SPL (1W/1m) • Magnetic shielding allows placement next to video monitor

WS-A10K Black (sold in pairs only)ea./\$165.00

WS-A10W White (sold in pairs only)ea./165.00

WS-A70 Compact, High-Powered Bass Reflex Speaker System

- 80W continuous power handling • 8" low frequency driver • Sensitivity rated at 87dB SPL (1W/1m) • Frequency response 50Hz to 18kHz • Built-in mounting points • Magnetic shielding allows placement next to video monitor

WS-A70K Black \$330.00

WS-A70W White \$330.00

WS-A80 Compact, High-Powered Speaker System

- 80W continuous power handling • Sensitivity rated at 92dB SPL (1W/1m) • Frequency response 65Hz to 18kHz • 8" low frequency driver • Thermal protection circuit • Molded resin enclosure with built-in handle

WS-A80K Black \$350.00

WS-A80W White \$350.00

WS-A200 Modular Speaker Systems

- Sensitivity rated at 98dB • Frequency response 70Hz to 20kHz • 12" low frequency cone transducer • Compression driver with Twin Bessel Horn • High-impact molded resin enclosure with integral mounting hardware

WS-A200K Black \$760.00

WS-A200W White \$760.00

WS-A240 Subwoofer

- 400W (EIA RS-426A) • Requires WS-SP2A subwoofer processor • Sensitivity 91dB • Frequency response from 30Hz to 125Hz • High impact molded resin enclosure • Recessed handle • Interlocking stacking ribs

WS-A240K Black \$620.00

WS-A240W White \$620.00

WS-SP2A Subwoofer processor \$350.00

WS-A500 Mid/High Frequency Modular Speaker System

- 200W continuous power handling • Frequency range 70Hz to 20kHz • Sensitivity 99dB • 12" low/mid transducer • High frequency titanium diaphragm compression driver • 4-pin Neutrik Speakon™ input connectors x 2 • Switch selectable Bi-amp for full frequency range operation • Precision frequency dividing network and driver protection circuitry

WS-A500K Black \$880.00

WS-A500W White \$880.00



WS-A80K



WS-A200K

WS-A550 Low Frequency Speaker System

- 400W (EIA RS-426A) • Frequency range 30Hz to 125Hz • Sensitivity 91dB • 4-pin Neutrik Speakon input connectors x 2 • Requires WS-SP2A subwoofer processor

WS-A550K Black \$700.00

WS-A550W White \$700.00

WS-SP2A Subwoofer processor \$350.00

Accessories

WS-AQ1W Speaker wall mount for WS-A500/A550/A200/A240/A80/A70.pr./\$170.00

WS-AQ2C Speaker ceiling mount for WS-A500/A550/A200/A240/A80/A70.pr./150.00

WS-AQ2W Speaker wall mount for WS-A10pr./70.00

WS-AQ3C Speaker ceiling mount for WS-A10pr./40.00

WS-AQ124 Lean-back stand for WS-A500/A200/A806 pk./120.00

W2-SA14 Flexible speaker mount for WS-A10.pr./200.00

W2-SA15 Mic stand speaker mount for WS-A10 \$55.00

WM-S1/S2/S5/S10 Miniature Condenser Microphones

Common Features

- Electret-condenser mics • Cardioid response gives excellent off-axis rejection for high noise environment • Sonic performance • Excellent transient response • Balanced XLR outputs • Adapts easily to a wide variety of wireless systems

WM-S1 Includes common features plus positive quick-mount system, 1.3" x 0.5" diameter mic head, 48V phantom powered. Designed for 148dB SPL level. \$230.00

WM-S5 Same as above except designed for 158dB SPL level \$330.00

WM-S2 Includes common features plus positive quick-mount system, 1.3" x 0.5" diameter mic head, 2-way power: 12-48V phantom, 3V battery. Designed for 138dB SPL level \$200.00

WM-S10 Includes common features plus 2-way power: 12-48V phantom, 3V battery. Designed for hands-free vocals via headset and boom \$260.00

WM-Q01 Telescoping mini boom for WM-S1/S2/S5 \$66.00

Panasonic

Broadcast & Television Systems Company

AMPLIFIERS/MIXERS

WP-1200/1400 Professional Power Amplifiers

- High performance • Fast and efficient Class H circuitry instantaneously switches to higher voltage power when high-level input signal appears • Output transistors installed in a "wind tunnel" style heat sink for efficient and cool operation • "Peak" and "Protect" LED indicators • "Intelligent" high-speed "crowbar" circuit for speaker protection • Balanced "instrumentation" quality inputs • Female XLR and 1/4" TRS phone connectors • 5-way binding (dual banana) speaker output posts • UL listed • 70V output transformers available

WP-1200	200WRMS per channel into 4 ohm load 120WRMS per channel into 8 ohm load Bridged output; 400W, 8 ohms	\$650.00
WP-1400	400WRMS per channel into 4 ohm load 240WRMS per channel into 8 ohm load Bridged output; 800W, 8 ohms	.800.00

WP-9055/9110/9220/9440 Professional Power Amplifiers

- 20Hz to 20kHz frequency response with THD of 0.006% at 1kHz at full power • Dual voltage "Super Rail" design • Power bandwidth well beyond 85kHz with flat frequency response • Low overall feedback • Precision detented input attenuators • Built-in remote status monitoring • Instrumentation quality electronically balanced inputs • Configured for stereo, mono or bridged input switch selectable operation • AC breaker • Delayed turn-on surge protection • Multi-way thermal protection • "Intelligent" V-I limiting • Telemetry available via 4-pin Molex type connector for remote monitoring • 5-way binding post connectors for each channel • UL listed • 70V output transformers available • Rack-mountable • Wattage ratings at 8 ohms

WP-9055	2x 50W, 1.75" rack space, convection cooled . . .	\$ 760.00
WP-9110	2x 100W, 3.5" rack space, forced-air cooling . . .	1000.00
WP-9220	2x 200W, 5.25" rack space, forced-air cooling . . .	1190.00
WP-9440	2x 400W, 5.25" rack space, forced-air cooling . . .	2490.00

Accessories

HXF-7050	70V output transformer, 50W for WP-9055 (4) . .	\$250.00
HXF-7100	70V output transformer, 100W for WP-9110/1200 (4)	350.00
HXF-7200	70V output transformer, 200W. All models except WP-9440 (2)	250.00
HXF-7350	70V output transformer, 350W, WP-1200/9055/9110/9220/9440 (2)	350.00

WR-133 Portable 8-Input/2-Output Audio Mixer

- High-quality performance characteristics—extended frequency response, wide dynamic range and noise-free performance • Switchable remote broadcasts, recording or sound reinforcement modes • Can be connected to cue to echo effect unit through pre-mix outputs, and to echo effect unit through from echo and to echo • Peak-level LED indicators • 2 VU meters • Frequency response: 20Hz to 20kHz • Rugged construction • Rack-mountable

WR-133		\$1470.00
WR-Q51	Rack-mount adaptor	100.00

WR-M10A Multiple Source Stereo Mixer

- 4 balanced mono input circuits • 6 stereo input circuits • 2 stereo phono input circuits • Mic priority override • Mono master control • Micro switches for remote-machine start per input fader • I/O connector panel can be moved to the rear, top or bottom surface • Rack-mount angle fittings allow installation flexibility • Can be mounted on a standard 19" EIA rack or a wall surface • Can also be flush-mounted in the wall or on a tabletop • Main output frequency response (with output transformer): 30Hz to 20kHz, +0.5dB, -2dB • THD: 0.3% max. (+18dB output, 50Hz to 15kHz, main output)

WR-M10A		\$995.00
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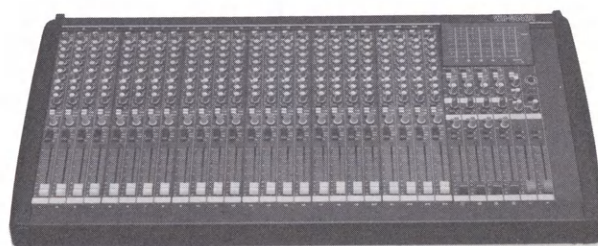
WP-1400



WR-M10A



WR-133



WR-S4424

WR-S4412/S4416/S4424 12/16/24-Input Mixers

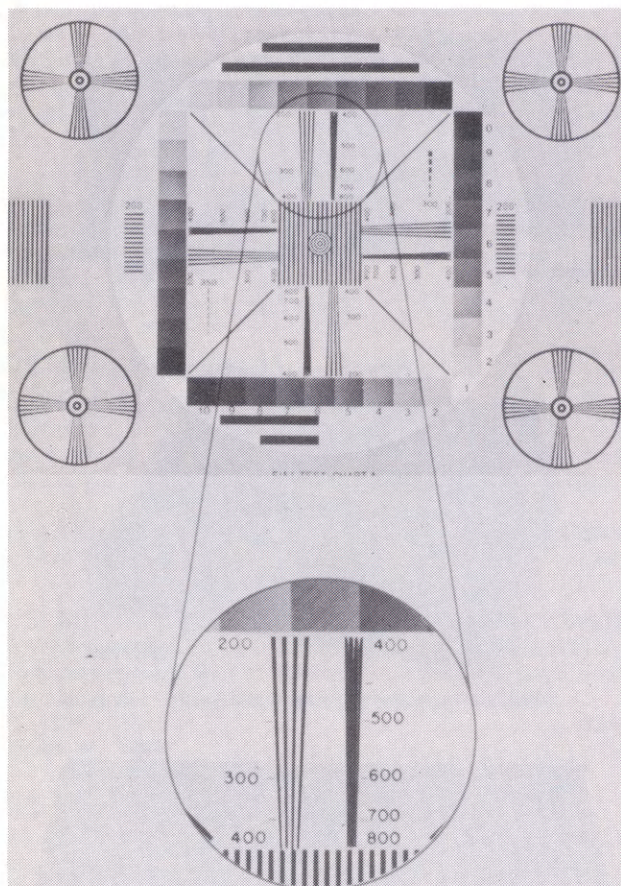
- Professional 4-bus mixers designed for permanent and portable sound systems • High quality 100mm faders • Balanced XLR per channel, plus B input TRS per channel • 48V phantom power on each channel • 3-band equalization with sweepable midrange on each input • Direct access to the left/right mixing buses from each input channel • 4 aux sends plus direct out per channel • 12-channel console has 15 discrete aux sends • 16-channel console has 19 discrete aux sends • 24-channel console has 27 discrete aux sends • Each input channel includes LED peak/signal present indicators • Balanced output on all 4 groups and left and right masters • PFL (Pre-Fader Listen) system per channel

WR-S4412	12 inputs	\$2350.00
WR-S4416	16 inputs	2800.00
WR-S4424	24 inputs	3750.00

SPECIFICATIONS—WHAT THEY MEAN

Resolution

It is a measure that shows to what extent details can be distinguished on the TV screen and it is generally called horizontal resolution. It can be evaluated by establishing the limit to which lines can be distinguished on a test pattern. A larger resolution value means a broader frequency band of the video signal.



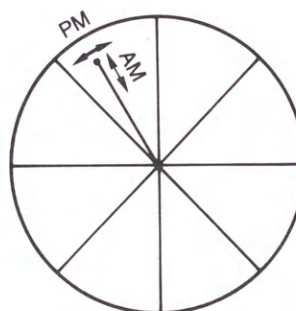
The resolution represents the maximum number of lines that can be seen to be clearly separated with the naked eye.

For example in this case, as the lines can be seen to be clearly separated below the division 4, the horizontal resolution is more than 400 lines.

Signal-to-Noise Ratio—S/N

An S/N ratio can be given for the luminance signal, chrominance signal, and audio signal. The S/N ratio is the ratio of noise to actual total signal, and it shows how much higher the signal level is than the level of noise. It is expressed in decibels (dB), and the bigger the value is, the more crisp and clear the picture and sound will be during playback.

The chrominance signal-to-noise ratio can be divided further into Amplitude Modulation (AM) and Phase Modulation (PM). AM shows the S/N ratio for the color saturation and PM shows the S/N ratio for the hue. AM and PM can be measured using a vectorscope (see illustration). AM is shown by the distance of movement of an indicator dot/line between the center and circumference of the vectorscope screen. PM is shown by the movement of the dot/line parallel to the circumference. In general, the smaller and clearer the dot/line of the vector is, the better the chrominance signal-to-noise ratio.



The smaller and clearer this dot is, the better the chrominance signal-to-noise ratio is.

VECTORSCOPE DISPLAY

Y/C Delay

TV pictures can be roughly divided into two signals: the luminance signal (Y) and the chrominance signal (C). When recording or playing back pictures, VCRs separate these two signals, process them in different circuits and then combine them again. When mixing these two signals, it is necessary to adjust the timing because the Y signal and the C signal are processed at different speeds. Lag of this timing is called Y/C Delay and expressed in n sec. The smaller the Y/C Delay value is, the smaller the timing lag is and the clearer a picture can be obtained.

SPECIFICATIONS—WHAT THEY MEAN (cont'd)

Specifications

Video Performance (measured by R/P heads)

Component

Band width:

Luminance; 30 Hz–4.5 MHz +0.5/–3.0 dB

Chrominance;

P_B 30 Hz–1.5 MHz +0.5/–3.0 dB

P_R 30 Hz–1.5 MHz +0.5/–3.0 dB

**50% Amplitude at 50% APL.

S/N Ratio:

Luminance; 49 dB

**Peak-to-peak video to RMS noise, interchange, unweighed (Video S/N ratio at 50% gray level, Rohde and Schwarz Noise Meter unweighed with bandpass filter, 200 kHz–4.2 MHz).

Chrominance;

AM 50 dB

PM 50 dB

**Peak-to-peak color subcarrier to RMS noise of the side bands, component in-composite out

AM Noise dB (AM) 20 log $\frac{V_{REF}}{\sqrt{(+0.5 V_{sub})^2 + (+0.5 V_{sub})^2}}$

PM Noise dB (PM) 20 log $\frac{V_{REF}}{\sqrt{(+0.5 V_{sub})^2 + (-0.5 V_{sub})^2}}$
V_{REF} = Red Bar

DG: Less than 2%

DP: Less than 2°

K Factor: Less than 2%

Y/C Delay: Less than 20ns

LF Linearity: Less than 2%

Composite

Band width:

Luminance; 30 Hz–4.5 MHz +1.0/–3.0 dB

Chrominance;

P_B 30 Hz–0.5 MHz +0.5/–3.0 dB

P_R 30 Hz–0.5 MHz +0.5/–3.0 dB

Differential Gain (DG) and Differential Phase (DP)

Both DG and DP show characteristics of distortion of the chrominance signal. They show in a numerical value, to what degree the chrominance signal is distorted in the amplitude direction (DG) and in the phase direction (DP) between the beginning and end of one horizontal scanning line. DG is expressed as a percentage (%) and DP is expressed in degree (°). The smaller the value is, the smaller the distortion is.

K Factor

This shows the fidelity with which an original wave form can be reproduced, and it is expressed as a percentage (%). For example, in the case of the picture shown in Fig. (C), the signal is as shown in Fig. (D) and frequency is very high for the white part. In this case, if the K Factor is bad,

only the lower frequency range can be reproduced as shown in Fig. (E) and as a result, the white that is reproduced tends toward back, i.e. it is grayish. The closer the K Factor is to 0%, the better the fidelity is.

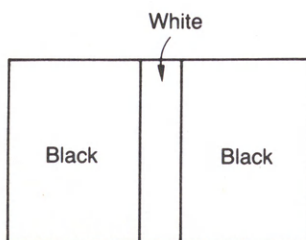


Fig. (C)

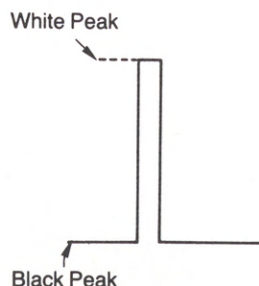


Fig. (D)



Fig. (E)

THE S-VHS SYSTEM

The Super VHS format follows in the VHS tradition, but offers dramatically improved picture quality, including greater horizontal resolution and improved S/N ratio. Further improvement in picture quality is achieved by employing separate Y (luminance) and C (chrominance) terminals for both input and output. The S-VHS picture quality is high enough for professional video production. And there are numerous other advantages for the professional, too. S-VHS cassettes are identical in size to the standard VHS cassettes and, therefore, much lighter and more compact than those of other formats, running costs are lower and the picture quality is comparable in most respects.

Horizontal Resolution of More Than 400 Lines

The conventional VHS format offers only about 240 lines of horizontal resolution, far short of the 330 or so that current color TVs are capable of. But S-VHS increases this to well over 400 lines by raising the FM carrier frequency of the luminance signal from the 3.4-4.4MHz band for standard VHS to 5.4-7.0MHz for S-VHS. The result is breathtaking detail and clarity.

A 210% increase in the peak white level enhances the picture quality even more, with excellent delineation of image borders and highly faithful reproduction of detail.

Improved S/N Ratio

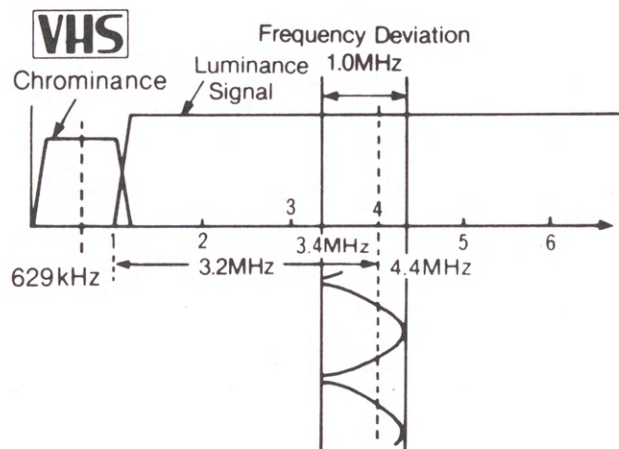
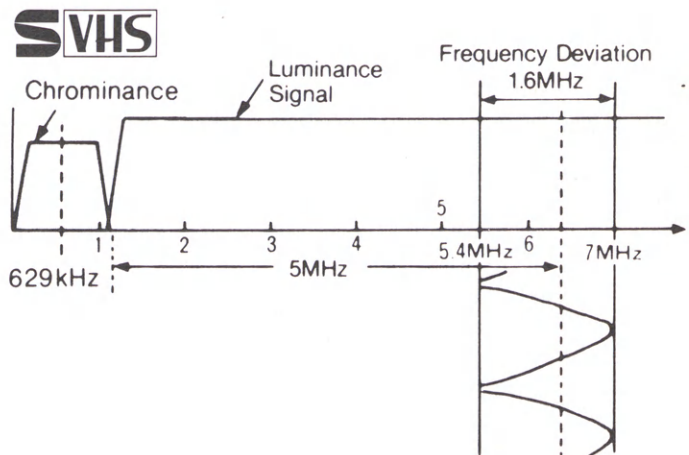
When resolution increases, so does noise. S-VHS solves this problem by broadening the luminance signal bandwidth (frequency deviation) from 1MHz to 1.6MHz, thus improving the S/N ratio proportionally. And, the non-linear sub-emphasis system further increases the noise-reduction effect by varying its emphasis according to the amplitude of the incoming signal and making it possible to apply the optimum amount of emphasis to signals of finely divided levels.

Separate Y/C Input and Output

Color-color (rainbow-colored noise in images containing checkered or striped patterns) and dot interference (dots aligning the borders of colors) were inevitable in composite signal input and output because of mutual interference between Y (luminance) and C (chrominance) signals. To prevent this, the S-VHS system separates the Y and C signals and applies them to the TV set in separate form. This advance paves the way for high-resolution monitors, cameras and editing equipment with separate Y/C terminals that minimize picture degradation to make possible edited results with excellent picture quality. Together, they offer great potential for the future.

High Performance S-VHS Tape

The S-VHS format utilizes cobalt-coated ferric-oxide tapes similar to those used in conventional VHS cassettes, but incorporates finer magnetic particles and a high-density charge for increased (900-Oe) coercivity and greater high-frequency output. This combination satisfies the technical requirements for S-VHS recording while maintaining VHS compatibility by the use of the same tape and cassette format as the standard VHS system. The super-smooth surface of the magnetic coating and special back coating for improved runnability also boost tape travel stability to reduce jitter and enhance durability.



S-VHS /VHS Compatibility

S-VHS videotapes can be recorded and played back on conventional VHS recorders in the standard VHS format with the best possible performance results. S-VHS VCRs can also record on and play back conventional VHS tapes. For recording, simply set the selector to S-VHS or VHS, depending on the type of cassette to be used. For playback, the correct system is selected automatically. S-VHS cassette shells are of standard VHS design, with a single hole added for identification.

Recording

TAPE	VCR	S-VHS VCR	VHS VCR
S-VHS tape		S-VHS mode	VHS mode
VHS tape		VHS mode	VHS mode

Playback

TAPE	VCR	S-VHS VCR	VHS VCR
S-VHS tape recorded in S-VHS mode		S-VHS mode	not possible
S-VHS tape recorded in VHS mode		VHS mode	VHS mode
VHS tape recorded in VHS mode		VHS mode	VHS mode

MII *ENHANCED* series

EnHanced Series **MII** refers to the 5th generation product that incorporates the most innovative, practical and powerful features into a tape format system. These innovations include an EnHanced performance digital 3-D TBC that has a full field of correction capability. 3-D refers to the TBC action in the horizontal, vertical and time domain.

All EnHanced series products come with a SMPTE time code reader or reader/generator as a standard feature. The EnHanced series products are clearly designed for the future. All **MII** EnHanced Series products are capable of playing back NTSC 16:9 wide aspect ratio video.

The **MII** EnHanced recorder/editor offers the Picture-in-Picture feature for sophisticated editing capability such as assemble, insert, any combination of video, 4 audio channels and time code. Furthermore, auto-tag, preview, review as well as audio split editing features are standard fare.

Even machines without the Auto-Tracking feature will provide a perfect, noiseless still picture in STOP, thanks to the powerful capability of the 3-D TBC.

All **MII** products are capable of recognizing and maintaining during editing a full 4-field color frame sequence. This ensures edits are clean and free from horizontal shift that can occur from improper color frame continuity.

EnHanced MII Format **Hand-Size 1/2" —Operating** **Ease for the Professional**

In designing the **MII** format, the aim was to solve as many problems as possible for the video professional. For ENG, this meant emphasizing mobility over recording time. For editing, it called for an entirely new recording medium that would meet a wider range of needs, from field recording to studio editing. The required approach would be in clear contrast to the conventional wisdom that said editing quality could be preserved only by using a larger tape size.

Starting with the optimum size of the VHS cassette and 1/2" tape, our goal was to combine broadcast quality pictures with ample recording time for editing. A number of new technologies led to success, in a format that serves professionals both in the studio and in the field because it was designed from the ground up with the operator in mind.

Metal Tape

New Magnetic Medium for High-Density Recording. The First Format to Specialize in Metal Tape.

Metal tape, with its superior magnetic characteristics compared to conventional magnetic tape, is the key to achieving high quality from 1/2" tape. So the decision was made to apply this relatively new technology to **MII** in the early stages of its development. Although a number of metal tape formats now exist, **MII** is superior in several ways because it was developed entirely for use with metal tape. In addition to superb picture quality, it offers the excellent linear audio characteristics of metal tape and a durable magnetic layer that reduces dropouts to optimize reliability. Playback characteristics are further improved by the use of laminated amorphous video heads, which we developed especially for metal tape recording.

MII Cassettes

The standard cassette is about the same size as a VHS cassette and slightly smaller than the small 3/4" cassette. The small **MII** cassette is only 70% the size of a Betacam cassette.

MII Recording Format

Y and C signals are recorded with separate heads onto separate tracks. 1 pair of tracks forms a field. Y and C heads are set to an azimuth angle of $\pm 15^\circ$. The AU-65H Studio VTR has a total of 6 heads on the head cylinder.

Metal Tape and Amorphous Heads

MII metal tapes use a high-density packing process to bond very pure, fine metal magnetic particles to the tape. The characteristics of these tapes are far superior to those of the ferric-oxide cobalt tapes used for 3/4" and S-VHS. Because laminated amorphous heads were developed especially for use with **MII** metal tape, they optimize playback characteristics to deliver high output and low noise.

Excellent Color

Luminance and Color Difference Signals are Separately Recorded to Preserve Signal Integrity.

Because NTSC color TV signals are composite signals, a composite recorder records the chrominance signal (C) together with the luminance signal (Y). 1 of the most welcome improvements of the S-VHS format was to separate these signals using the S-Video terminal. Picture quality was markedly improved by keeping the 2 signals separate throughout the process, from camera to VTR to monitor. But 2 major problems remained, because the Y and C signals are remixed on the tape for recording and playback.

Both 3/4" and S-VHS formats use separate Y and C signals, but in order to record them with the same head, they recombine them after FM modulating the Y signal and converting the C signal to a lower frequency to prevent overlapping. 1 problem is the bleeding effect of cross-color at color borders, caused by the slight intermodulation of Y and C signals during recording and playback. The other problem is that the optimum recording system cannot be used for each signal when frequencies have to be allocated in order to record them both with the same head. This also leads to narrow bandwidths and low S/N ratios. Furthermore, both problems are compounded with each playback and recording cycle, so picture quality degrades with successive dubbing generations. **MII** utilizes an analog component system to record the Y and C signals with completely separate heads onto completely separate tracks. Additionally, advanced Chroma Time-Compressed Multiplexing carefully preserves the S/N ratio and timing of the easily degraded C signal, to deliver picture quality comparable to that achieved by the direct composite recording of the 1" VTR.

MII ENHANCED Series (cont'd)

Recording Format (NTSC)

High Resolution

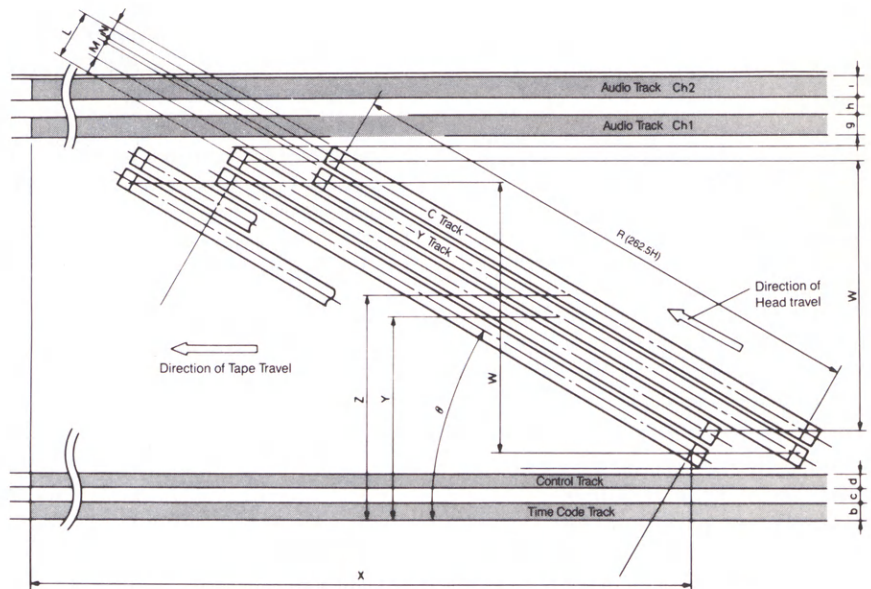
Faithful Reproduction of High Frequency Luminance Signals Delivers Excellent Edited Picture Quality.

Component recording and the use of metal particle tape enable the luminance signal to have the same 5.5MHz bandwidth as the 1" VTR format. Whereas horizontal resolution is often used as an index to show the detailing capability of ordinary video equipment, professional equipment is gauged by how high its recording and playback frequencies extend, and by how flat recording and playback characteristics are at these high frequencies. True capability is shown not by the clearcut images of test patterns, but by actual images with an abundance of small amplitude signals. Because MII records the luminance signal onto an entire track of its own, the bandwidth is more than sufficient to deliver crisp, well-defined edges for fine text, even after dubbing. And because it uses component recording, there is no need for the noise canceller that is found on so many of today's editing VTRs. The details in edited pictures are not "painted out" because small signals are canceled along with the noise when a noise canceller is used.

Time Code

LTC and VITC High-Precision Editing Features Are Standard.

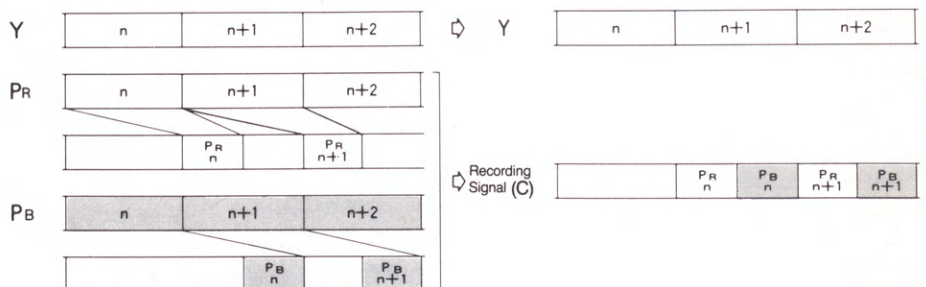
Using SMPTE standard time code, absolute addresses are recorded onto the tape to show hours, minutes, seconds and frames. In addition to enabling frame-accurate editing, this forms the basis for automatic editing with a multi-event memory. Because some current VTR formats are not provided with a separate time code track, professional applications are possible only by sharing 1 of the linear auto tracks or overlapping the video signal with a time code. This cancels out 1 of the 2 audio channels and makes it impossible to insert record the time code on previously recorded tapes. Also, LTC code alone does not allow precise setting of edit points, because it cannot be read in slow or still mode. The MII format includes an LTC track in addition to the 2 linear audio tracks and records VITC code onto the vertical blanking interval of the video signal. All MII models are thus prepared for frame-accurate editing.



Recording System Comparison

Many analog VTRs separate the NTSC composite input signal into Y and C signals, then use various methods to prevent adverse mutual effects when recording. $\frac{3}{4}$ " uses basically the same methods as VHS (S-VHS) and Beta-max, which is to FM modulate the Y signal and convert the C signal to a lower frequency in order to avoid overlapping. The 2 signals are then remixed for recording. MII and other analog component systems use separate needs to record the Y and C signals, so each signal is provided with a sufficiently wide bandwidth for recording.

Recording Principles of CTCM



CTCM (Chroma Time-Compressed Multiplex)

The n value ($n + 1, n + 2$) in the figure above represents 1 line (1H). As shown in the figure, the color difference signals are known as P_b and P_r . Since a part of the signal would be lost every other line if P_b and P_r were simply recorded in alternate cycles, the CTCM method compresses the time axis of P_b and P_r to $1/2$, then records the P_r signal after a 1H delay and the P_b signal after a 1.5H delay. This enables recording and playback of fully intact color difference signals.

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